

ACTIVITY REPORT
Ecological Society for the Study and Protection of Flora
and Wildlife AQUATERRA

The Ecological Society for the Study and Protection of Flora and Fauna AQUATERRA was founded in 1991-1992. At that time, it took a long time (almost 2 years) to obtain the operating permits from the Ministry of Education and Training and from the Ministry of Environment, Water and Forests, because we, the founding members, wanted the association to operate freely and actively among students in order to awaken their interest in nature and life sciences, for the conservation of biodiversity, for saving species from extinction, by developing technical, practical, applied skills, ecological / biotechnological / ichthyological / zoological research in order to be able to develop effective applied research infrastructures for the reproduction of very rare species of flora and fauna and then to initiate programmes for ecological reconstruction and repopulation of natural habitats of refuge for these species.

It was quite difficult to be understood for our good intentions, as founding members in 1991-1993 (younger and older professors from the Faculty of Biology of the University of Bucharest, students, young researchers from scientific research institutes in Romania, zoological experts from the Grigore Antipa National Museum of Natural History). Since the founding of our association in the professional university campus of Life Sciences and Geographical or Earth Sciences, we have been carrying out a joint project of collaboration between the Aquaterra Ecological Society in partnership with the Faculty of Biology of the University of Bucharest, where we have been based for 30 years - room 113 and room 7 - within our zoology discipline, in order to manage to implement: projects on scientific research in the field, environmental and biodiversity educational projects and alternative professional training projects for students.

Members and volunteers of the Aquaterra ES from our students at the Faculty of Biology have always had the opportunity, for 30 years and until today, to benefit from the organizational and teaching resources of the ES. Aquaterra for their free professional training, as young expert naturalists, biologists, who in the meantime have become great zoologists, ichthyologists, entomologists, malacologists, ornithologists, mammalogists (mammal experts, herpetologists), amphibian and reptile experts, botanists, biodiversity research experts, of Natura 2000 habitats, attracted by sponsorships, donations from older members, programmes won in tenders organised by various national and international foundations, research projects won in tenders organised by the Ministry of Research - CNCSIS, since 1996 until today.

All the service contracts signed and accessed by us, contracts for the realization of landscaping or aquariums for protocol, for various companies that have conditionally sponsored us, have led to small self-financing funds but which have allowed us to organize small expeditions with ecological themes in the country and to carry out scientific studies and research in scientific reserves, national and natural parks.

Ecological research of the aquatic habitats of all 11 freshwater river basins of Romania, of the Danube habitats, of those in the Danube Delta, of those in the coastal area of the Black Sea, the 2 Mai - Vama Veche submarine reserve - where we contributed during 1990-1997 to the declaration and study of this submarine reserve which covers 3500 nautical miles.

From the very beginning of the activity of S.E. Aquaterra we have set up a beautiful and original biobasis in the courtyard of the Faculty of Biology, called Aquaterra Ecological Educational Complex, developed by us only through self-financing from sponsorships, donations, small work and scientific research projects accessed by S.E. Aquaterra from the Ministry of Research (S.E. Aquaterra has been accredited since 1996 as an accredited and eligible research unit for scientific research - functioning practically as a research institution, like the stations, institutes and universities, research units, accredited by the Ministry of Research and the Ministry of National Education). This scientific educational complex for students set up, on a voluntary basis, by professors and students and other members of the S.E. Aquaterra team from outside our faculty, operated from 1991 to 2013. This resulted in a Scientific Research Aquarium containing 650 aquariums of various sizes (from 50 litres to 2.500 liters of water) with biological recirculating aquaculture water filtration systems) and 2 aquaria with filtration and water recirculation systems, provided with cascades for progressive aeration of aquaculture water, which consisted of 33 aquaculture and research tanks for the reproductive biology of rare fish species. These had a total volume of 335 tons of water. In 2002, the Ford Motor Company Foundation in Washington, USA, awarded us the first prize for this project dedicated to the study of very rare fish species, their rescue and the training of the first fish rescue ichthyologists in Romania.

Our award ceremony in the U.S. coincided exactly with the day of Romania's entry into NATO, on which occasion the award ceremony took place in the Unirii Hall of the Cotroceni Presidential Palace. Moreover, for a year afterwards, a Ford Foundation documentary film was made and promoted worldwide as a model for training students in the scientific study of captive reproduction of river fish (which otherwise have not been studied much worldwide). This film has been publicised through the Ford Foundation's worldwide network and even through United Nations programmes as a model worth following.

In 2006 we were mentioned in the PHARE project, for twinning with the European Union, in the research field of evaluation of the most important stations, laboratories, faculties with scientific research profile for ichthyology and aquaculture in the period of pre-accession to the European Union and evaluation of the objectives of professional training of students and aquaculture and ichthyology (2005-2006) - objective that is the basis for Romania's accession to the European Union on January 1st 2007. It was also the only objective evaluated that was 100% non-governmental tangible and formative for students. In this objective we managed to carry out the study of ecology and reproduction of many species of fish, some of them very rare and threatened with extinction (sturgeon in the Danube and Black Sea - moray - *Huso huso*, nase - *Acipenser guldenstaedti*, wrasse - *Acipenser stellatus*, cega - *Acipenser ruthenus*, pike - *Esox lucius*, gudgeon - *Umbra krameri*, *Gymnocephalus*

cernua. *G. balonii*. *Misgurnus fossilis*, the Comana cleanul- *Petroleuciscus borysthenicus celensis*, the wagtail- *Cobitis elongatoides*, the nisiparnița- *Sabanejewia romanica*, the cricket- *Barbatula barbatula*, the loggerhead- *Phoxinus phoxinus*, the common grebe- *Cottus gobio*, *S. aurata*, *S. balcanica*, *S. bulgarica*, *S. radnensis*, *S. vallahica*, mountain cranberry- *Barbus peloponesius*, all farmed cyprinid species in the lowland area, farmed salmonids).

All this scientific research was carried out only by S.E. Aquaterra or in partnership with other scientific research institutions in Romania (Nucet Aquaculture Research Station, Dâmbovița County, Galati National Aquaculture Research and Development Institute, S.C. Kaviar House SRL; S.C Răduță Sporting SRL, National Institute for Research and Development of Animal Biology and Nutrition Balotești, National Institute for Research and Development of Horticulture Sere-Berceni, Bucharest, National Institute for Research and Design of the Danube Delta Tulcea).

During the period in which S.E. Aquaterra operated, we bred over 95 species of freshwater and coastal marine fishes from the Black Sea, having at one time more than 36 marine aquariums with fauna from the Black Sea.

Thus, by working intensively on these research contracts, which have already been accessed in various national tenders, our student biologists and other members of S.E. Aquaterra have been trained as true scientists. Since the establishment of S.E. Aquaterra we have wanted and succeeded day after day, month after month, year after year to become an alternative for the scientific educational training of biology, ecology and biochemistry students in the above mentioned fields.

Through undergraduate, masters and doctoral work financial support from S.E. Aquaterra has long resulted in the training of many zoologists, botanists. Their travels in nature, together with the permanent members of S.E. Aquaterra and their concrete participation in practical and lucrative activities of aquarium installations, aquaterrariums, terrariums, recirculating aquaculture systems, biological filters have contributed to this. This led in time to the development of skills (of cognitive creative abilities of students and young naturalists) of scientific research, recognition of species and habitats deepening of the great problems of biodiversity, contributed greatly to their becoming in all this time for 4-10 years as active members of S.E. Aquaterra (by defending their bachelor's degree works, master's dissertations, doctorates, ISI scientific papers, promoted and supported by S.E. Aquaterra) and thus turning them into great specialists in biodiversity conservation and rescuers of species of Romanian flora and fauna.

In all the 30 years of continuous activity of our association, we have contributed daily to the training of expert zoologists, ecologists, young scientists who are a credit to us and our country. Today they work in the most prestigious institutions in Romania or in various universities and scientific research institutions in the European Union, USA, Canada, Australia, (national scientific research institutes - INCD, Institute of Environmental Engineering Bucharest, Institute of Biology of the Romanian Academy, Grigore Antipa National Museum of Natural History, Ovidius University of Constanta - Faculty of Biology.

We have presented our strategic education projects to the school inspectorate of the Municipality of Bucharest or to different schools in the country where our past members have become biology teachers in order to send to us the most passionate students who want to become passionate biology students, touched by the sacred fire for nature since early childhood, being convinced that this is what matters most in their education to become very passionate naturalists. Many times we have helped high school and college teachers and supported such noble projects to give a clear focus to the passion for biology and nature of young students.

We try to instill a love for nature in schoolchildren and pre-schoolers, as well as in older generations and students, to educate them alternatively about the vulnerability of species and natural habitats and to open their ecological scientific horizons in order to make them aware of the value of Romania's wild natural heritage, represented, in *sensu stricto*, by protected natural areas (scientific reserves, national parks, nature parks, landscape reserves, natura 2000 SCI sites - strictly protected ornitofaunistic reserves and SPA - Special Protected Areas).

In parallel with the formative education of students provided by the state education of the university, we have contributed for 30 years by inviting students from schools and high schools in Bucharest to help us as volunteers, together with their teachers, active members of the S.E. Aquaterra association. Our older members already trained at S.E. Aquaterra or our former members work today also in: the Ministry of Environment, the Ministry of Water and Forests and in other very strong environmental and biodiversity conservation organizations in Romania (WWF Romania, Romanian Ornithological Centre, Romanian Ornithological Society, ACDB Focșani).

S.E. Aquaterra has attracted financial resources from private companies in Romania, which have been usefully invested both in the development of the scientific research base in the courtyard of the Faculty of Biology of the University of Bucharest and in the realization of hundreds of scientific expeditions in the natural environment of Romania, for the training of young people as experts in the field of biodiversity sciences, conservation of species and habitats of nature 2000 and sustainable development.

Thanks to our original way of putting problems, we managed to convince the national regulatory authorities (Romanian Academy - Commission of Natural Monuments, Ministry of Environment, Waters and Forests) to declare the Valley of Vâlsanului Scientific Reserve, covering an area of 10,000 hectares, in order to save from extinction the aspree (*Romanichthys valsanicola*), one of the very rare species of fish that we have been constantly working for 32 years to save and keep alive. Since 2019, we are no longer alone in saving this species, having established a solid partnership with the Alex Găvan Foundation for the Rescue of the Aspree, as well as with other organizations working in the field of rare species conservation in Romania and abroad.

For the last two years we have been considering in our work the National Action Plan to Save the Aspree, which is to be signed by the Ministry of the Environment, thus becoming law for the next 10 years.

The recognition of our formative work has also been acknowledged by Animal Planet TV, which supported S.E. Aquaterra from 1997-2000. At that time we created the first Animal Planet Club in the world, organised by us for the training of young people, which still exists today under the aegis of S.E. Aquaterra.

Since 2006, we have been trying to convince both national and local environmental authorities of the need for a special applied research base or infrastructure for breeding and biological research, more specifically for the reproduction of very rare fish species, because this is the only way we will be able to develop biotechnologies for the reproduction of these very rare wild fish species and to provide them with a natural living food, as in their natural habitats of refuge.

In the last 16 years, only with the help of Romanian sponsors and with small self-financing from contracts for environmental services (being accredited by the Ministry of Environment since 1997 for carrying out Environmental Impact Assessments, SEA and interim environmental reports) we have already completed a significant part of the construction necessary for the creation of the first ichthyological and aquaculture research station for very rare species of wild ichthyofauna in Romania within the S.E. Aquaterra in Plutonița, Suceava County. This small resort could become very large, however, as it is the only one of its kind in Romania. We have already called it "Noah's Ark", because it is destined for the future, for tens and hundreds of years from now, for the reproduction of rare species of fish, feeding them with live food (100% of their diet in the resort) so that they can be destined for ecological reconstruction, through permanent ecological reconstruction actions, to repopulate with sustainable herds of very rare, endangered fishes of Romania's ichthyofauna, species of lostrids and hagfishes, sturgeons, and many other very rare endangered fish species. Thus, with our little "Noah's Ark" we are professionally in line with the European policies promoted by the European Commission, Pan-European, to achieve the first effective programs of ecological reconstruction, through effective repopulation, not just words or management plans written on paper but which no one applies for 16 years since our accession to the European Union!.

Unfortunately, for more than 30 years we have been witnessing, even with major European funds for environment and biodiversity: pre-accession programmes for researching and declaring Natura 2000 sites, then the big European programme POS MEDIU (between 2007-2013), POIM programme (between 2015-2022).

In our country, which has become a democracy after 1989, some activities have led to a thousand-fold increase in the number of poachers, commercial fishermen, under the guise of their authorisation as sport fishermen (they are thousands of times more than before the Revolution). There has been an increase in the number of poachers and illegal loggers, but the fraudulent use of living aquatic resources (fish, invertebrates, seaweed, leeches, amphibians) in natural habitats, even in protected areas, but also in habitats such as meadows, forests, natural meadows in alpine areas, etc. The threats are therefore thousands and thousands of times greater and more intense than before the 1989 Revolution.

The European Union has allocated huge funds for the preparation and scriptural approval of management plans for Natura 2000 sites, most of them existing only on paper, not being implemented at all, and have resulted in the accelerated decline of rare species of fish and other flora and fauna, ignoring, for 16 years, the many major, dangerous threats to aquatic biodiversity of freshwater in Romania. These threats through poaching and masked sport overfishing (actually commercially carried out every day for over 33 years since the Revolution by at least 10% of anglers), this is about 200,000 anglers out of the approximately 2 million anglers declared nationwide. They have become plunderers of the living aquatic resources of Romania's natural waters, which have meanwhile become apocalyptic, through the impoverishment of the local population on the banks of the Danube, the Danube Delta, the banks of rivers and streams, and the intensification of poaching on the face of it or disguised as sport fishing licences obtained apparently legally (in reality they are commercial fishermen and are not really monitored by the environmental authorities and the fisheries inspectorate).

The financial sources brought to Romania through POS MEDIU and POIM (through the Ministry of European Funds) have not reached their targets at all. However, we are talking about projects in the order of hundreds or thousands, each of up to 10,000,000 euros per project. We are talking about projects worth billions of euros, financed by the European Union in the period 1997-2022, aimed at saving Romania's wild natural heritage.

Unfortunately, we have not benefited from any such project so far. Our realistic vision is probably often disregarded and challenged by the very people who call themselves authorities with a role in active control and conservation of biodiversity. Who is served by unenforced management plans in a free country but where environmental and biodiversity legislation is too little enforced and very rarely sanctioned for reported transgressions. We have been sounding the alarm bells, but hundreds of beautifully written management plans that remain only on paper do nothing for species that are dying out. Without concrete approvals for the creation of ecological reconstruction and repopulation centres, nothing can be done. We have, through various research contracts for the evaluation of aquatic species and habitats, of freshwater ichthyofauna concluded directly with the Ministry of the Environment, Water and Forests, signalled the serious situation of the ichthyofauna of our country's rivers, the Danube and the Danube Delta, the Black Sea Coastal Zone and the causes listed in this report. Unfortunately, no action has been taken by the national authorities and we have plenty of it.

In 2019 we also conducted a reassessment of ichthyofauna in many catchments and again reported that the depletion of fish populations in natural waters has become even more pronounced between 2015 and 2019. In 2020 we conducted a stock assessment of fish species in 12 Natura 2000 sites located between Drobeta-Turnu Severin and Oltenița, Calarasi County, on about 650 km of the Danube through scientific control fishing. We found that only 26 species of Danube fish were caught by scientific monitoring out of more than 86 species that should have been caught.

The local population is virtually stunned by the wild poaching carried out by moonlight at night, with locals unable to catch fish even for their own food, even if they are legally authorised as sport or commercial fishermen. Fish are the most prolific of all vertebrate animals in the world.

Only the completion of some constructions intended to achieve reproduction and repopulation with stocks of juveniles produced in captivity from these rare, very rare, even common species will lead to the rapid recovery of fish populations in Romania's freshwater fish stocks in maximum 10 years. SE Aquaterra, through its members, is sounding the alarm, we are building such a station with huge efforts. This is in fact the only way of ecological reconstruction, now, before it is too late, so please come and join us.

Now we have a direct active partnership agreement with the Ministry of Environment since 2016, an agreement to support the development of our resort in the north of the country (village Plutonița, town Frasin, Suceava county). Until 2018 the management of protected natural areas was also carried out by NGOs. Between 2013-2018 S.E. Aquaterra administered, through tenders organized by the Ministry of Environment, Waters and Forests 7 Natura 2000 sites. Unfortunately, although the evaluation of the management and custodianship in autumn 2018 (October-November 2018) was positive and actively demonstrated by evidence and funds attracted by Romanian NGOs, carried out for most environmental NGOs and private companies that were custodians or administrators of protected natural areas until summer 2018, by emergency ordinance OUG 85/ 25 July 2018 the custody of all sites was taken away from us, it will be carried out only by the National Agency for Protected Natural Areas (ANANP) through its 40 branches throughout Romania. With this act, all the environmental NGOs in Romania are marginalised, and some 12,000-15,000 zoologists, botanists and ecologists already trained in biological education for 32 years have been marginalised. In fact, it is a question of marginalising/discriminating against the best naturalists active in the field of conservation - active members of organised environmental civil society in Romania.

We, professional biodiversity conservation and environmental NGOs, also function as the only active federation of environmental organizations in Romania where S.E. Aquaterra is also a member since 2016. Practically, for over 4 years the protected natural areas have remained preserved on paper, without rangers, without guard, at the mercy of poachers, fishermen, illegal hunters.

But we hope that the new ANANP leadership will understand our active role as active environmental NGOs that have done and can do a lot for nature in Romania. We hope that our authorities will understand that the work of conservation of rare species of Romania's wild natural heritage, as we see in the films on Animal Planet, Discovery, National Geographic, this activity can only be done with passionate people, highly qualified trained experts, but above all, trained with a lot of passion and deep professional education in the Faculties of Biology, Geography, Geology in Romanian universities. Discriminating or removing them from the act of conserving Romania's species and habitats, and therefore from managing them, is a serious act that must be quickly remedied by politicians.

As well as the management plans already on paper - there will be no one to implement them without the 12,000-15,000 NGO experts, the only active naturalists, members of Romanian civil society, defenders of the scientific truth about the environment and biodiversity in line with European policies for the conservation/administration/custody of protected natural areas. Through our active work we have contributed to the scientific studies and to the national campaigns for the declaration of the Văcărești Natural Park in the period 2009-2016, in partnership with the Văcărești Natural Park Association.

In the spring of 2017 we participated in the official welcome of Prince Charles of Great Britain at the Văcărești Natural Park together with our students and the management of the Faculty of Biology, an honourable moment for us and Romania. Currently, after the construction on the old site of the Aquaterra Ecological Educational Complex of the Research Institute of the University of Bucharest, through the accession funds for new investments in research infrastructure, we are contributing to build de novo, i.e. from scratch, 3 new research laboratories for the assessment of the pollution of habitats in Romania, the assessment of the impact of pollutants on the metabolism of test animals (ecotoxicological research models for the in-depth scientific assessment of the metabolic impact on tissues, organs, blood, muscles, at the cellular-tissue level of pollutants, food supplements, drugs, plastics and even microplastics, nanoparticles of pollutants, heavy metals on floating microplants of *Lemna minor*, *Lemna trisulca*, *Spyrodella polyrrhiza*, *Wolffia arrhiza*) or cladocereal crustaceans (*daphnia* or water fleas, test model on zebra fish- *Brachidanio rerio*) or senescence study models on specific, naturally very short-lived test fish (*Aphiosemion australis*, *Rivularis* sp.-very short-lived fish, with a lifespan of about 3 months). This unique laboratory will lead to the further training of new experts to realistically assess the impact of pesticides, drugs, food supplements, other toxic products for which this is the only way we will be able to assess their toxic concentrations leading to the generation of the most serious human diseases (cancers, autoimmune diseases).

A new legion of 21st century students, master's students, PhD students is now forming before our eyes, the founding team of S.E. Aquaterra, a team that works day and night to build new laboratories for young people (Aquaterra members and volunteers, other students eager to work in the most advanced fields of environmental and health research, biodiversity conservation, saving rare species of flora and fauna from extinction).

In the resort in the north of the country ("Noah's Little Ark" in Plutonița, Suceava County) we are now writing a great project in partnership with the National Institute for Research and Development of Environmental Engineering in Bucharest, where in the meantime many Aquaterra members have even become direct collaborators and we have actually carried out together with many other ichthyologists in Romania the National Action Plan for Saving the Lostrids from extinction, the 2nd species of fish that the members of the S.E. Aquaterra team have been dealing with constantly for over 38 years. In 2005, as an advisor to the then Minister of Agriculture and Rural Development, in Romania's pre-accession to the European Union, I was able to write and promote numerous pieces

of legislation - including the initiation of 10-year conservation and rescue legislation for sturgeon species in the freshwater ichthyofauna of the Danube. At that time, many species (moray eel and nysetra) were already on the verge of extinction and together with 2 important companies at that time I contributed to the first sturgeon research programmes and the effective repopulation of the Danube with juveniles of all 4 sturgeon species (moray eel, nysetra, herring and grey sturgeon) with private companies that had developed repopulation programmes as a result of the legislation already achieved in 2005 (S.C. Kaviar House S.R.L and S.C. Răduță Sporting. S.R.L.). Only these two private companies have carried out special breeding and repopulation stations with sturgeon species, which unfortunately have been stopped since 2015 when it was already 10 years since they were initiated for the first time in the entire Danube basin, an action that is, after all, extremely commendable for Romania at world and European level. We are trying and will continue to try to submit new scientific briefs to continue repopulating the Danube with sturgeon juveniles. However, when 10 years have passed (in the autumn of 2015) we submitted a memo for the continuation of sturgeon restocking and at our request we managed to achieve a second order for restocking with juvenile sturgeon for another 5 years, unfortunately this has not been achieved so far through any project funding / implementation of the new order that meanwhile, in 2020 has expired. There is a need for a new order for sustainable recovery of Danube sturgeon populations.

In 2016 we succeeded in accessing an important European project in our development and as a scientific research organization by approving in partnership with 7 other partners the project of applied research for the development of new systems of biological filtration of aquaculture water, using new strains of filtering microorganisms, the development of new biological filtration systems using for the first time in the world and floating plants with a very high multiplication capacity (species of lynx-Lemna Minor, Lemna gibba, Spirodella polyrrhiza, Wolffia arrhiza). We had as prestigious western partners 5 scientific research departments from 5 European Union member countries, homologous institutions and 2 partners from Romania (Institute of Biology of the Romanian Academy and S.C. DFR Systems - a prestigious private research company in the field of municipal wastewater treatment and its return to the freshwater cycle).

Also, in the framework of the S.E. Aquaterra activity, we have published several scientific articles over 3 years and we have filed two research patents at OSIM (Romanian National Office of Inventions and Trademarks) together with our partners in Romania. The results of the already successfully completed project can be analysed and therefore I kindly ask you to visit our project website with the acronym www.abaware.ro.

This year, 2023, we started to organize, with our own resources, the first afforestation campaign carried out by the members of S.E. Aquaterra, with the help of the members and volunteers of S.e. Aquaterra from the branch in Plutonița, Frasi, where our resort is located, but also through the partnership already established with the Forest College of Câmpulung Moldovenesc - where future foresters, forestry technicians and forestry engineers are trained, who will work in the near

future in the management of Romania's forests. We already have an active partnership with the Faculty of Forestry of Stefan Cel Mare University in Suceava. Both for students and for the students of the educational institutions with which we have concluded partnerships, we have made and will make available our small station, the research base already partially completed with laboratories (about 50% completed), the ecological education club (70% completed), the microreserve on 6 hectares (total conservation and protection - 100% completed since 1973), private forests (17 hectares - grouped and studied - 100% completed) and its management, owned by the S.E. Aquaterra), 10 hectares of mountain meadows owned and totally protected - where there are 5 very rare species of wild orchids, protected at European level and many other species of flora and fauna, lepidoptera and other invertebrates of meadows and meadows, in 100% conservation degree) with all that we have already achieved, offering the possibility for the realization of the work of students and students of diploma, bachelor, master and doctorate. They will have the opportunity to use the area of over 16 hectares of private forests, acquired by Aquaterra during 2018-2019, and meadows as well as the breeding station for rare fish species, at the scientific microreserve, which has been fully conserved since 1973 (with 47 years of total conservation on an area of about 6 hectares) as well as at the Faculty of Biology of the University of Bucharest, through our continuous work for over 30 years - and we hope that in a few years the development of the research station at Plutonița will be completed. Many activities could be organized within the research station, many events and professional exhibitions of nature photographs organized by the S.E. Aquaterra team, exhibitions and scientific symposia that could be held in the north of the country (taking into account the completion of the conservation infrastructure of the strictly scientific reserve Codrul Secular Slătioara and 9 other protected areas within the Rarău-Giumalău Mountains (between 1993-1996).

We have been collaborating for over 3 years with World Fish Migration - a new conservation organisation for migratory species of endangered fish, for whom micro-hydropower plants and large hydropower plants have become obstacles to their free migration for as long as the world has existed. Unfortunately, here our country, through all its institutions, is deficient in European policies for the conservation of running waters, the implementation of environmental and biodiversity policies by stimulating active and participatory dialogue of correct communication between the relevant Ministries (Ministry of Environment, Water and Forests, Ministry of Agriculture and Rural Development, through ANPA - National Agency for Fisheries and Aquaculture, Ministry of European Funds, Ministry of Economy, Ministry of Energy) and Romanian NGOs and foundations and audio-visual media.

In Romania, in the last months of 2023, an uncontrollable situation was created, which resulted in complaints to the European Union by many environmental NGOs, supported by journalists unable to understand and show the great threats to the environment and how it would be possible to remedy them. Members of SE Aquaterra know the real situation of how MHCs (micro-hydropower plants) have been built in Romania and we have also realistically

assessed their impact on aquatic biodiversity, highlighting the scientific expertise that must be objective. When analysing the impact of MHCs as well as large hydropower plants, we need to move from false fiction to objective reality.

Members of S.E. Aquaterra have tried many times to support our point of view both to the big contributors (Hidroelectrica, EON, ENEL, Transelectrica, Romgaz) and to the managers and responsible for the implementation of the European Directives: the Habitats Directive, the Birds Directive, the Water Directive, through the Law no.107/1996 on water management, with all its modifications until now, the Nitrates Directive. The implementation of these directives was to be carried out by: Ministry of Environment through ANANP and Biodiversity Directorate for over 30 years as well as by ANPA- National Agency for Fisheries and Aquaculture, since its foundation in March 2005, the European Aquaculture Fisheries Fund-POPAM, administered by D. G Marey, by the European Commission ANAR - National Agency for Romanian Waters, as an institution for the implementation of European directives and especially the Water Management Law, which in the view of S.E. Aquaterra is the best environmental and environmental law, but only achieved on paper to maintain the quality of Romania's fresh waters.

Without a realistic assessment of compliance with the country's environmental and water management legislation, we will not find the real culprits and responsible parties. Without realistic recognition on the ground of the real impact of MHCs, of the ways to reduce the environmental impact produced by micro-hydro and macro-hydro energy developments we will not be able to do anything serious from which man and life gain absolutely nothing. The time has come to try and succeed in developing a broad partnership to solve the problems and thus contribute to the conservation of biodiversity and sustainable development.

The truth is that all MHCs have non-compliant fish ladders, all of which were built to a single hydro-engineering design on which no team of ichthyologists or fish engineers was consulted. Each fish ladder must meet several conditions: 1. It must be in accordance with the normal river/stream flow and that of its maximum and minimum flow rates; 2. The slope or section differs from river to river and this factor must be taken into account;

3. If the fish ladder only allows salmonid migration (it is selective and therefore automatically anti-ecological) upstream and downstream, we have only produced serious ecological imbalances between migrating fish populations. Even if trout could jump upstream they will eat all the prey represented by small, sedentary, poorly swimming species that cannot jump or migrate upstream over these non-compliant and selective ladders, all made the same across the country. (loggerhead - *Phoxinus phoxinus*, common dentex - *Cottus gobio*, eastern pike - *Cottus poecilopus*, mountain trevally - *Barbus meridionalis petenyi*, beldis - *Alburnoides bipunctatus*, mountain porcupine- *Gobio uranoscopus*, *Gobio gobio*, moor or cricket-*Barbatula barbatula*, nisiparnița-*Sabanejewia romanica*, *Sabanejewia balcanica*, *Sabanejewia vallachica*, *Sabanejewia radnensis*, mihalțul-Lota lota. SE Aquaterra has been campaigning for more than 30 years for the construction of two large fish ladders at the two dams on

the Danube River (Iron Gates 1 and 2) to allow the free migration of sturgeons to their old natural spawning grounds along the Danube River as far as Germany and all the tributaries of the Danube where sturgeons used to come up from the Black Sea in spring to breed. We are now also campaigning for new fish ladders to be built at every micro-hydropower station in the Carpathians, in collaboration with ichthyological experts. Their retrofitting or correction can be carried out at each MHC fish ladder, with very small budgets of about 10.000-50.000 euro/each fish ladder-which is an insignificant expense for each green energy producer-each energy company having to take on the implementation of European legislation. This, now more than ever, could only be done effectively at the dialogue table. Sitting down at the dialogue table and acknowledging the failure to solve this serious environmental problem as a major threat produced by every MHC on every river in the Carpathians and finding easy technological solutions for the retrofitting of non-compliant ladders at every MHC is the only economic and ecological alternative, another one does not exist and we can offer our scientific and technical expertise for their realization on each river in part, in the same way, for the big hydropower plants we can realize fish lifts or simply a partnership on each river basin in part (there are 11 river basins) where, according to European legislation, Water, Nitrates/Nitrites Directives there must be annual scientific fisheries assessment by the team of ichthyologists at each river basin, which to be effective should be made up of a minimum of 5 ichthyologists monitoring the quality of the waters and aquatic habitats, with all their biodiversity, study of water bodies - zoobenthos, phytobenthos, ichthyofauna, sediments, microbiological analysis of pollutants in the water body and sediments, microbiology of aquatic microhabitats, their ecological balance in accordance with the Water Law and the Habitats and Birds Directives, etc. This analysis bulletin must be carried out by joint teams of experts. Let us all contribute to highlighting this stark truth, which should have been taken into account since Romania's accession to the European Union on 1 January 2007, and let us begin to control and enforce by the environmental and water management authorities that these annual investments transforming HCMs and large hydropower plants into investments in green energy production, carried out through adequate environmental assessment studies (EAS) and reality-compliant interim environmental reports (RIMs) that respect objective reality and carried out with experts in the field of zoobenthos, phytobenthos, phytoplankton, zooplankton. These research and monitoring topics have not so far funded Romania by those responsible (ANAR, Ministry of the Environment, ANANP, ANPA, RNP) or at least be imposed on the huge beneficiaries with large financial resources, who manage these resources for the state (Hidroelectrica, EON, ENEL; Romgaz, SNP Petrom, Transelectrica). According to the environmental legislation, the environmental authorities should require these companies to have the above mentioned studies carried out by authorised environmental NGOs, according to the sponsorship legislation where they can invest 20% of the profit tax.

The Romanian state through its control institutions, taking into account the environmental legislation should check these large state and private companies according to the slogan translated into specific laws for over 60 years by

the European Union and North American legislation - The polluter pays annually the price of the threats produced all the time, continuously, every year on aquatic habitats. Biodiversity studies must be carried out on all aquatic groups of hydrobionts, annual repopulation and reproduction of very rare fish species to restore or maintain a constant ecological balance in each of the 11 river basins throughout the country!

Energy investors must be checked annually, because European legislation provides for this, by numerous control bodies: the Environmental Guard, the ANPA's Fish Inspection, the National Forestry Agency, as administrator of mountain waters, ANANP with 40 branches, the National Environmental Protection Agency and 40 county Environmental Protection Agencies, ANAR with 40 county SGA-uri (water management services) and 11 Basin Administrations (ABA directly subordinated to ANAR central) which follow the implementation of the water management law. The water law is the most ecological law in Romania, but its implementation leaves much to be desired, as if there were no financial resources allocated for the provision of ecological services by the users of the country's water resources (energy production companies, recreational users, fishing associations, etc.). The fact that the big energy companies sponsored or financed something totally different from what was absolutely obligatory for them, as users of living aquatic resources, is their fault but especially that of some representatives of the authorities who never summoned them or imposed heavy fines on them. It seems that at European Union level we are classed as a country on the verge of financial blockage because of this major cause.

Fish are, according to UN policies, through the 2010 Forum for Food for All - FAO, the most important food resource for mankind, being a good steward of aquatic habitats. Every country in the world takes great care in managing this resource of freshwater fish species to maintain the ecological balance of freshwater and marine habitats. Our waters have almost reached the point where there are very few fish species, worse than in African or Asian countries! Thus, the only way to ecologically rebuild and repopulate our waters every year until the ecological fish stocks or stocks of each species in each river or stream in the Danube, the Danube Delta and the Black Sea coastal area are restored is to push ahead.

Through our example, through the work of the members of S.E. Aquaterra, we hope that in the near future we will be able to establish as many of these breeding stations for rare fish species as possible, so that in the near future annual restocking can be carried out in each river basin of the 11 large river basin administrations. Massive annual restocking is needed for decades to come in order to restore the ichthyofaunal biodiversity that has been silently destroyed (by irresponsible, ruthless poachers and fishermen, who have acted with greed and a total lack of public social responsibility) in 32 years of administrative negligence, poaching, influence peddling, administrative corruption in this fragile area) will hardly recover in decades to come, and only if we now start by acknowledging the truth and understanding how fragile aquatic habitats

are - far more fragile than all terrestrial habitats (forests, meadows, grasslands, grasslands).

Romania's wild natural heritage of fresh and marine waters has been destroyed for over 30 years without compensation or ecological reconstruction through restocking. Almost nothing has actually been done and the country's waters have now ended up with very few fish instead of producing many valuable aquatic resources (fish from over 86 freshwater species in large quantities, as it was until 1990). The big energy companies, partly responsible for not financing the necessary ecological reconstruction programs on all 11 river basins year after year, although the sponsoring legislation would have allowed them to make year after year the financial support of these major ecological programs absolutely obligatory towards the aquatic environment - they are state and private companies that use water as an economic agent, without paying for the environmental damage, produced by compensatory ecological actions of repopulation, according to the ecological doctrine Polluter pays! From the 20% sponsorship percentage, from the profit tax of these large energy companies and those who manage hundreds of MHCs in the Carpathian Mountains on all the country's rivers, no real research activity has been financed, no responsible ecological reconstruction activity, in accordance with European laws and European directives (Habitats Directive, Birds Directive, Water Framework Directive, Nitrites/Nitrates Framework Directive).

Unfortunately, no realistic environmental projects have been funded that would have helped these energy companies meet their national and European environmental and biodiversity obligations and become truly green companies. The catastrophic environmental impact situation resulting to date from the apocalyptic negative effect achieved, for more than 32 years, by increasing threats to living aquatic resources in all the country's waters, through serious violations of environmental legislation, should not be overlooked at all. I think it is not too late, however, then let's start this responsible national partnership between professional environmental and biodiversity research institutes & professional environmental and aquatic biodiversity NGOs & Ministry of Environment, Waters and Forests - through the Biodiversity Directorate, the National Agency for Environmental Protection with its 40 local MPAs, the National Agency for Protected Areas (ANANP) with its 40 recently established county branches, the National Environmental Guard with its 40 county inspectorates, RNP, ANAR& the Ministry of Agriculture and Rural Development-ANPA (National Agency for Fisheries and Aquaculture), the Ministry of Administration and Interior - through the Police and Local Police Inspectorates and the Romanian Gendarmerie.

I propose, to all those interested and responsible in this field, to rely on the scientific expertise of S.E. Aquaterra and to start a real process of collaboration and responsible public communication of the truth in this field, to start collaborating for the real implementation of ecological restoration programs, through ecological reconstruction of aquatic habitats, through annual restocking, necessary to be carried out from now on year by year. All responsible national stakeholders as well as the authorities responsible for the implementation of

controls and conservation laws must put up a united front and solid partnership for the implementation of these measures.

Since 2015, S.E. Aquaterra has also been part of the National Monitoring Commission of the European Fisheries and Aquaculture Programme (MAGP), which administers the European fund, financed by the European Union through the Directorate for Fisheries and Aquaculture of the European Union called D.G. Marey. This committee monitors the MAGP programme for the administration of this fund through which only aquaculture farm construction programmes have been carried out. Research and evaluation programmes must be made available for the fish gene pool and the production and ecological productivity of fish biomass in the aquatic habitats of Romania's natural waters (the 11 large river basins, the Danube and the Danube Delta, the large natural pools and lakes in the lowlands and in the area of the large cumulation lakes with electricity production, the Romanian Black Sea coastal area). POPAMN (Managing Authority for the Operational Programme for Fisheries and Maritime Affairs) has not funded for 17 years any kind of programme to assess the production and aquatic productivity of freshwater, which used to be of great economic value and today produces nothing, resources already depleted by poaching and irresponsible fishing, fragmentation of river habitats by dams or other threats, dumping of microplastics, pesticides, other toxic substances resulting from uncontrolled economic activities or not monitored responsibly by the authorities. Who stands to gain from the fact that our freshwaters have become almost deserted? We all stand to lose, and it's a great pity because these waters are public, they belong to everyone.

Today we need to start from a responsible zero point and create partnerships with the express purpose of ecological reconstruction and the study of the current reality in nature that offers viable solutions for ecological reconstruction. In the field of aquaculture S.E. Aquaterra has valuable proposals of new aquaculture technologies to be promoted and applied in the near future, by introducing new valuable fish species in aquaculture, in order to decrease poaching pressure on communities, associations and fish species in Romanian waters.

**President Ecological Society Aquaterra,
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