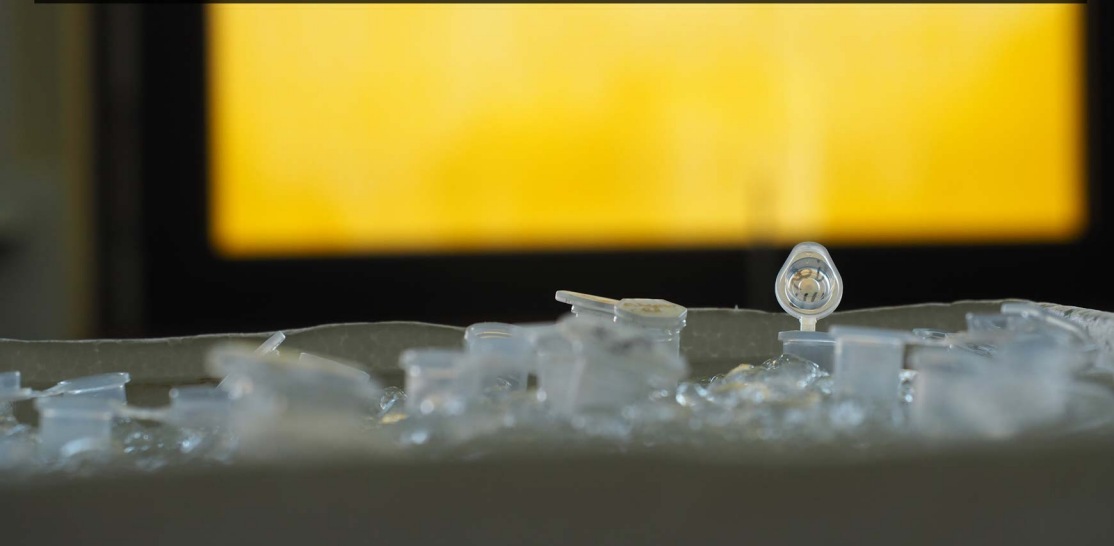


As part of the interdisciplinary seminar *Microplastics and Medusae – poetic expeditions into H₂O* directed by Roman Kroke and Henning Wehmeyer, students of the Berlin University of the Arts (UdK) and the Technical University of Berlin (TU) embarked together on a travel assignment to thirteen scientific laboratories throughout Germany specialized in the research on plastics in aquatic environments. On the basis of this experience the students developed hybrid artworks which were exhibited at the international festival *The Universal Sea – Pure or Plastic?!* in Budapest (HUN), 2018. The project was supported by the Hybrid Plattform of the UdK and TU which serves the cross-disciplinary exchange of art, science and technology.

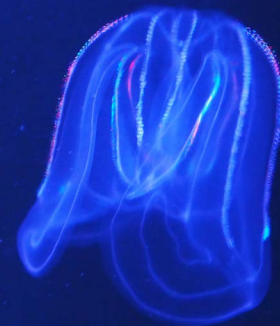


Plastic Poetry: *Sunset in Crystalline Garden* (Roman Kroke, 2017)

Roman Kroke (Ed.)

Microplastics and Medusae – poetic expeditions into H₂O

Interdisciplinary pilot project about the plastic pollution of aquatic environments



Berlin University of the Arts (UdK) | Technical University of Berlin (TU)



Universität der Künste Berlin

Title: Microplastics and Medusae – poetic expeditions into H₂O. Interdisciplinary pilot project about the plastic pollution of aquatic environments.

Editor: Roman Kroke

In collaboration with: Henning Wehmeyer

Berlin, Verlag der Universität der Künste Berlin (2020)

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The publication was financed by the Commission for Artistic and Scientific Projects of the UdK (KKWV).

ISBN 978-3-89462-338-8 (PRINT)

ISBN 978-3-89462-339-5 (PDF)

Bibliographic information by the German National Library

The German National Library lists this publication in the German National Bibliography; detailed bibliographic data is available on the internet at <http://dnb.d-nb.de>.



Universität der Künste Berlin

Roman Kroke (Ed.)

Microplastics and Medusae – poetic expeditions into H₂O

Interdisciplinary pilot project about the plastic pollution of aquatic environments

Berlin University of the Arts (UdK) | Technical University of Berlin (TU)

Concept and Curation

Roman Kroke, Lecturer (UdK)

Project Coordinator

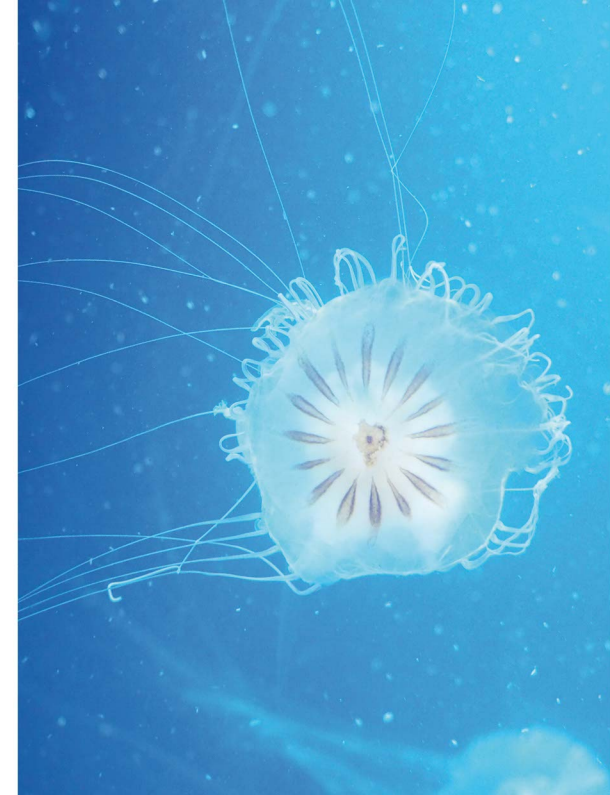
Henning Wehmeyer, Music Pedagogue (UdK)

Berlin 2020

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Dancing Synthetics
Photo by Roman Kroke, taken during his preparatory
research for this seminar at the medusae breeding
facilities of the Aquarium Berlin (2018).



A. Preface

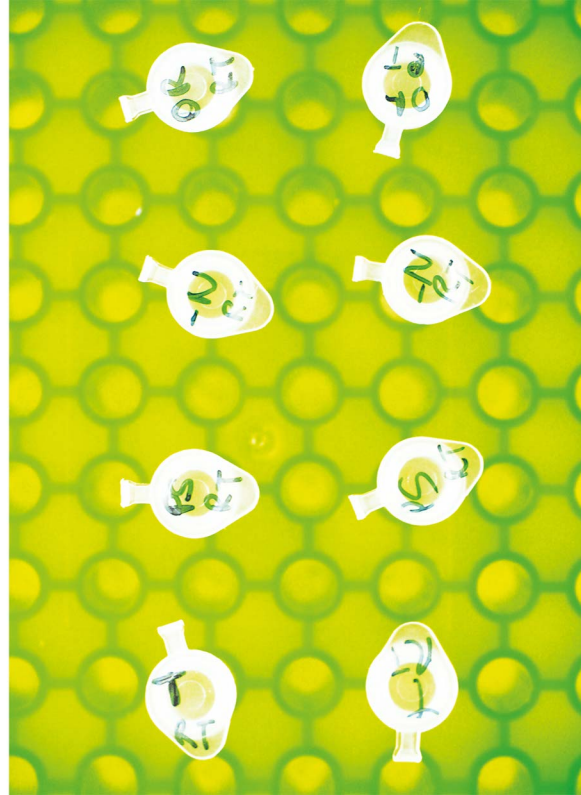
"... like a child in front of a fairy-tale world." With these words Marie Curie, Nobel Prize winner in physics and chemistry, once described the scientist working with the laws of nature. Experimental exploration is a vital strategy to discover and invent new pathways within the scientific method. These approaches are similar to the creative ways and means taken by artists. Not surprisingly, therefore, during the last few years more and more scientific institutions have actively fostered an interdisciplinary exchange with the world of arts.¹

What new artistic languages of form and methodology will students from the Berlin University of the Arts (UdK) discover when they leave their studios, rehearsal rooms and stages venturing, together with students from the Technical University of Berlin (TU), into the laboratories of scientists? And, conversely, what new impulses can students of biotech and environmental protection receive by adopting artistic perspectives to their scientific challenges? To what extent can art serve as a connecting communication bridge helping us to make complex research topics accessible to a broader public and thereby raise awareness of a more responsible and sustainable interaction with nature?

These key questions were at the heart of the interdisciplinary seminar *Microplastics and Medusae – poetic expeditions into H₂O*, which we developed for the UdK, in partnership with 13 scientific laboratories specialized in research on plastics in aquatic environments:

- Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Helgoland
- Bayreuth University, Faculty for Biology, Chemistry and Earth Sciences
- Carl von Ossietzky University, Institute for Chemistry and Biology of the Marine Environment, Oldenburg
- German Water Center (TZW: DVGW-Technologiezentrum Wasser), Karlsruhe
- Eberhard Karls University, Institute of Evolution and Ecology, Tübingen
- Eberhard Karls University, Centre for Applied Geoscience, Tübingen
- Fraunhofer Institute for Ceramic Technologies and Systems – IKTS, Dresden
- GEOMAR Helmholtz Centre for Ocean Research, Kiel

¹ A prime example is the Artist Residency Program of the European Organization for Nuclear Research (CERN).



- Helmholtz Centre for Environmental Research – UFZ, Leipzig
- Leibniz Institute for Baltic Sea Research, Warnemünde
- Leibniz Institute of Freshwater Ecology and Inland Fisheries, Berlin
- Technical University of Darmstadt, Dept. of Material Flow Management and Resource Economy
- Technical University of Munich, Chair of Aquatic Systems Biology

The project was supported by the Hybrid Plattform of the UdK and TU which supports the cross-disciplinary exchange of art, science and technology.

The catalog begins with a scientific introduction into the topic of plastic pollution by Dr. Annika Jahnke (UFZ Leipzig), illustrated through the research expedition MICRO-FATE conducted last summer across the Pacific Ocean. Next, I outline the concept and phases of the project, followed by a documentation of the student artworks created in the course of this interdisciplinary journey. These pieces were exhibited at the international festival *The Universal Sea – Pure or Plastic?! in Budapest (2018)* – organized by the Institute for Art and Innovation e.V. (Berlin, Germany) and Hybridart Management (Budapest, Hungary). The exhibition was co-funded by the Creative European Programme of the European Union.

A special thanks goes to all scientists who have welcomed the students during their research travels as well as to those which have invited me during the elaboration phase of the project concept, to Prof. Martin Rennert (President of the UdK), Prof. Dr. Reinhard Schäferhöns (Dean of the Faculty of Music of the UdK), Bert Bretschneider (Head of Administration of the Faculty of Music of the UdK), Flóra Tálas and Katrin Wendel (Studium Generale, UdK), all involved associates to the UdK administration, Nina Horstmann (Hybrid Plattform), Prof. Dr. Ulrich Szewczyk (Chair of the Department of Environmental Microbiology, TU), Rainer Kaiser (Director, Aquarium Berlin), Nicole Loeser (Institute for Art and Innovation e.V.), Kata Szeder, Réka Pócsi and Amin Rezai (Hybridart Management Budapest).

◀ School of Fish tattooed in Algae Waters
Photo by Roman Kroke, taken during his preparatory research for this seminar at the laboratory of the Institute for Molecules and Materials, University of Maine, Le Mans/France (2017).

Berlin, 13 January 2020

Roman Kroke
Interdisciplinary Artist

B. Project Leadership



Roman Kroke is an interdisciplinary artist working on the topics of citizenship and societal values. He develops, coordinates and directs exhibitions, workshops, lectures and teacher trainings for students and adult learners in partnership with universities, scientific institutes, schools, memorial sites, prisons, museums, foundations and TV-productions (arte.tv). His drawings and installations are metaphorical transformations of scientific, literary and historical sources, through which the former lawyer brings socio-political themes into an open and universal-philosophical discourse. For the Berlin University of the Arts he has directed several seminars in the domain of experimental storytelling and art as a medium of interdisciplinary and intercultural communication (2015-2018). Art residencies: in Berlin coordinated by the Zurich University of the Arts – Institute for Art Education (CH), 2015/2016; in Aix-en-Provence at La Non-Maison (FR), 2013; in Belarus (BY) sponsored by the Bielski Family Foundation and the Goethe Institute, 2010. Interventions related to his art about the pollution of the oceans and marine biodiversity:

2020: lecture at the Rufford Foundation Conference *Enhancing Biodiversity Conservation in the Philippines*, organised by the Large Marine Vertebrates Research Institute Philippines (LAMAVE), Manila (PHL); research stay at LAMAVE's field site in Pintuyan (PHL) devoted to the study of whale sharks.

2019: artistic mediator on behalf of the Helmholtz Centre for Environmental Research (Leipzig/DE) during the scientific expedition SO 268/3 on the research vessel SONNE crossing the Pacific Ocean from Vancouver (CAN) to Singapore; exhibition and lecture at the Museum of Contemporary Art of Vojvodina, Novi Sad (SRB) as part of the international festival *Danube Dialogues*; EU Erasmus+ workshop for a mixed group of students from Geneva (Collège de Budé), the Réunion Island and the Shetland Islands – in cooperation with the Dept. F.-A. Forel for Environmental and Aquatic Sciences/University of Geneva (CH); teacher training for the Educational Department of the Canton of Geneva (CH); lecture at an interdisciplinary colloquium on climate change, organized by the architectural institute OCRA – Officina Creativa dell'Abitare, Montalcino (IT); lecture and workshop at the United World College (UWC) Mostar (BIH) – sponsored by the Europe for Citizens Programme of the European Commission.

2018 (all lectures): scientific conference *MICRO 2018 – Fate and Impact of Microplastics: Knowledge, Actions and Solutions*, Lanzarote (ESP); 17th International Encounters on New Philosophical Practices, organized by the UNESCO Chair on the practice of philosophy with children (4-18 years), UNESCO Headquarters, Paris (FR); Li Po Chun United World College (UWC), Hong Kong (HKSAR); Summer University *Mer Éducation*, organized by the European Scientific Institute for Marine Research (IUEM), Brest (FR); lecture, exhibition and workshop at the international scientific colloquium *ÉcoBIM*, University of Bordeaux (FR).

Roman Kroke during his freediving research in the Philippines on prominent representatives of the filter feeding marine megafauna: whale sharks. ►



An insight into Roman Kroke's passion of developing projects about issues of marine conservation with an artistic approach:

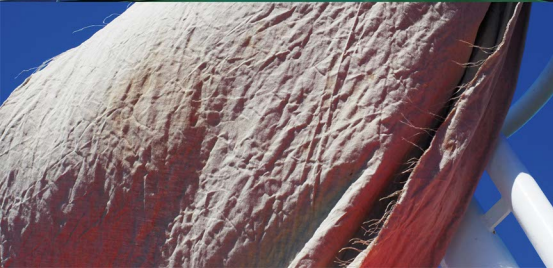
"Many challenges in this field take place in the invisible, at least for us humans: geographically far away, below the water surface or in the microcosm. How could art contribute to promote an ecological awareness which breaks through the boundary of the water surface and understands our habitat in the air together with that in the water as a unity?"

In my experimental installation *Lift to the Ocean Bed*, realized in the heart of the "North Pacific Garbage Patch" on board of the German research vessel SONNE², I first let my canvas travel over 5,000 metres into the depths of the Pacific Ocean. Thanks to the help of the scientists and the crew I managed to attach it to a scientific instrument: the so-called Multiorer (MUC). It reminds me of a gigantic, steely scarabaeus. Researchers use it to punch sediment cores out of the ocean floor.

My goal was to get a FINGERPRINT of the ocean! During its journey, I firstly aimed at saturating the canvas with all segments of the Pacific water column. Tethered to and under one of the MUC's "feet", the canvas was then to stamp the deep-sea sediments into its fibres when touching down on the seabed. In this way, I impregnated the canvas with the research universe of the first group of scientists participating in our expedition: those researching the fate of microplastics in the realm *below* the water surface.

² For details about the scientific expedition SO 268/3 see page 8 et seqq.





In the following installation *"Empty" Flag*, I then let the soaked canvas dry from the sun and wind of the Pacific. Through this process of bleaching and wrinkling, I enriched it with traces from the research universe of the second group of researchers on board: those concerned with tiny particles suspended above the water surface in our atmosphere, so-called aerosols, and their impact on climate change.

In my exhibition of the "blank" canvas at the Museum of Contemporary Art of Vojvodina (Novi Sad/Serbia), I aimed at challenging the empathy and exploratory spirit of the visitors. Would they succeed in building a lasting poetic connection to (almost) invisible stories?

They had the opportunity to trace details in the fabric structure of the canvas with the help of a historical object: a thread counter, used in the Middle Ages to assess the quality of a cloth. Supported by documentary videos on the scientific work on board of the research vessel, the exhibition visitors were thus able to discover stories about the ochre-coloured stain on the canvas (= the dried "fingerprint" of the ocean from the installation *Lift to the Ocean Bed*) or about the dried salt crystals. How do microplastics from our households end up in the oceans? Do deep-sea sediments form a significant sink for our plastic waste? What is the role for the ecological balance on the seabed of the so-called meiofauna, miniscule organisms living between the sediment grains? How will they react to the planned deep-sea mining and enormous sediment upheavals aiming to "harvest" manganese nodules as a source of nickel and cobalt for our mobile phones and laptops?"



E. The seminar at the Berlin University of the Arts (UdK)

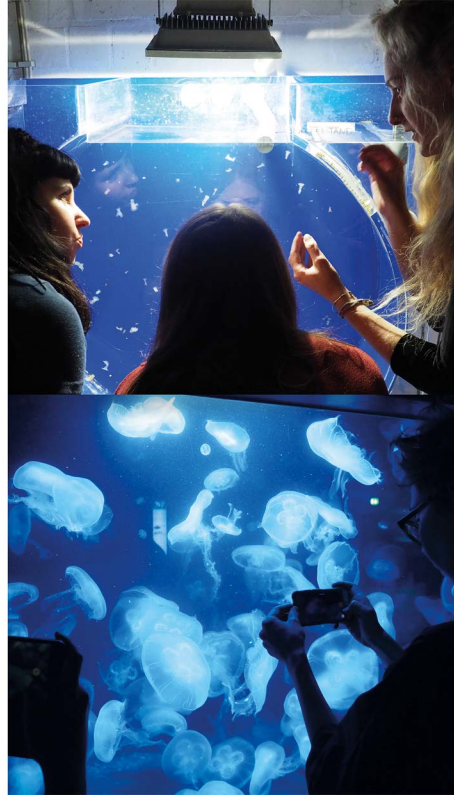
Roman Kroke
Project Leader

The pilot project *Microplastics and Medusae – poetic expeditions into H₂O* premiered as an interdisciplinary seminar at the Berlin University of the Arts over the duration of one year (winter semester 2017/2018 and summer semester 2018) – in partnership with 13 scientific laboratories specialized in the research on plastics in aquatic environments. It was proposed as part of the Studium Generale, the basic cultural-scientific interdisciplinary program of the UdK. In order to stimulate the exchange between the arts and sciences, our seminar was also open to students of the Technical University of Berlin (TU). The participation of the TU students was coordinated by the Chair of the Department of Environmental Microbiology Prof. Dr. Ulrich Szewczyk. The project was supported by the Hybrid Plattform of the UdK and TU which serves the cross-disciplinary exchange of art, science and technology. The process and development of the project were divided into three phases:

Phase 1: Introductory working sessions – the scientific and artistic context

The group was composed of 18 students from the UdK (5 x Fine Arts, 6 x Visual Communication, 2 x Architecture, 1 x Stage Design, 1 x Communication in Social and Economic Contexts, 1 x Teacher Training Program Music, 1 x Music Education/transverse flute, 1 x Teacher Training Philosophy and Art,) and 6 students from the TU (5 x Biotechnology, 1 x Technical Environmental Protection). The first part of the seminar was devoted to introducing them to the scientific and artistic context.

- Lecture by Prof. Dr. Ulrich Szewczyk: *Plastic in the water environment – a question of perspective?*
- Visit of the Aquarium Berlin with a guided tour behind the scenes by its director Rainer Kaiser. Particular focus: Presentation of the medusae breeding facilities. In this context, they were introduced to various philosophical questions linked to the topic of “Sustainable Development”: the relationship between “Vulnerability and Responsibility”, “Man and Material”, as well as the evolving polarity between the “Natural and the Artificial”.
- Analysis-Module I: One of the goals of the project consisted in creating bridges of communication between the world of science, the arts and a broader public with respect to the environment topic of



plastic pollution. The students therefore analysed texts of two contemporary authors working on concepts of responsible citizenship and societal interaction: *Hartmut Rosa*, a German sociologist and political scientist, and *Abdenour Bidar*, a French philosopher and pedagogue. As a complement to the text sources, each group also had a variety of metaphorical photos which they could integrate into their reflections in free association.

- Analysis-Module II: Texts from philosophers who have worked on the (poetic) relationship between mankind and the element water, in particular *Gaston Bachelard* (1884-1862), *Thales von Milet* (approx. 624 – 546 v. Chr.), *Paul Valéry* (1871-1945) and *Jean-Philippe Pierron*.⁴
- Analysis-Module III: Texts from authors who have been working on the relationship between mankind and the material of plastic, in particular the French philosopher and historian *Bernadette Bensaude-Vincent*.⁵

³ Hartmut Rosa, *Resonance: A Sociology of Our Relationship to the World*, Polity (2019); Abdenour Bidar, *Les Tisserands. Réparer ensemble le tissu déchiré du monde*, Les Liens qui Libèrent Éditions (2016).

⁴ Gaston Bachelard, *Water and Dreams*, The Dallas Institute for Humanities and Culture (2006); Paul Valéry, *Oeuvres. Tome 1*, Gallimard, Paris (1975); Jean-Philippe Pierron, *Ecologie politique de l'eau: Rationalités, usages et imaginaires*, Editions Hermann (2017).

⁵ Bernadette Bensaude-Vincent, *Reconfiguring Nature through syntheses: From Plastics to Biomimetics*, in: Bensaude-Vincent, Bernadette/Newman, William R. (Ed.): *The Artificial and the Natural: An Evolving Polarity*, The MIT Press (2007), 293-312; Bensaude-Vincent/Newman, *The Artificial and the Natural: State of the Problem*, in: *ibid.*, 1-19.



Phase 2: The Research Travels

On the basis of these introductory working sessions, the students embarked on their research travels to the 13 scientific institutes where they dived into the current laboratory practice on microplastics, guided by the local scientists.

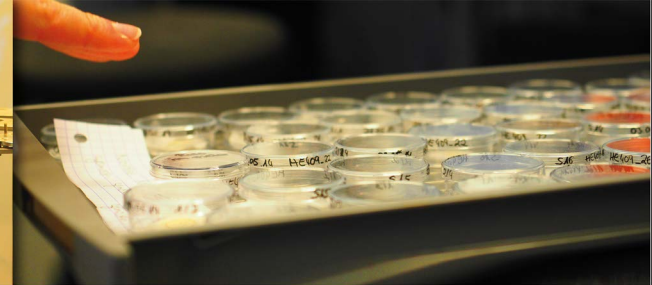
In order to assure a personal encounter between students and scientists the group size for each visit was limited to two students. With the aim of maximizing the interdisciplinary exchange also within each student group, we formed six pairs constructed as “binoms” consisting of one student from the UdK and one from the TU; the other groups were always composed of two UdK students belonging to different study programs.

**Anyone who leaves his home and moves in space
is also mentally and emotionally set in motion.⁶**

The students were provided with only the contact details of their supervising scientists. This was a deliberate facet of the project concept in action: ask the students to organize the rest of their travel details autonomously. Over centuries, poets and thinkers have repeatedly chosen “the journey” as a form of experience to impact their creative working process. During their research trips, the students were asked to keep a travel journal. They were free in choosing the medium with which they would document their experience (textual notes, photos, film and sound fragments etc.). What role would the form of recording play in relation to the development of the later artwork? Would there be content impossible to note and if yes, why? Would the journals reflect (un)conscious strategies of how to cope with a potential (scientific) information overload?

Would it be possible to trace back certain epistemes generated in the course of the project to the specific setting of “the journey”? What role may the journey play as prelude and “echo space” before as well as after exchanging with the scientists? From a metaphorical perspective, could the students voyaging through Germany in connection with the fluid materiality of water be associated with microplastics traveling through aquatic environments being inhabited by biofilm?

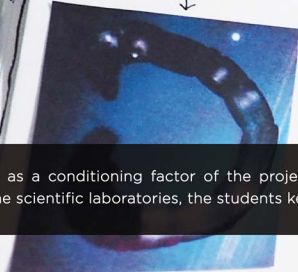
⁶ A prominent pedagogue who advocated travelling as an integral element of education was the cultural policymaker, economist and resistance fighter Adolf Reichwein (1898-1944): Adolf Reichwein, *Jungarbeitererziehung durch Auslandsreisen*. In: Reichwein, Adolf/Lingelbach, Karl Chr./ Amlung, Ullrich: Band 3 : *Schriften zur Lehrerbildung und frühen Schulpädagogik, 1930-1936*. Klinkhardt, Bad Heilbrunn (2011), 238-243; Adolf Reichwein, *Über Reisen*. In: Reichwein, Adolf/Amlung, Ullrich: Band 2 : *Schriften zur Erwachsenen- und Arbeiterbildung, 1925-1929*. Klinkhardt, Bad Heilbrunn (2011), 232-237.



Anouk Tschanz, student of Communication in Social and Economic Contexts (UdK), had to organize the journey by boat. Her laboratory, the Alfred Wegener Institute/Helmholtz Centre for Polar and Marine Research, is located on the North Sea island Helgoland. Other students decided to hitchhike to their laboratory and interviewed the drivers about the topic of ocean conservation and microplastics; this data was later integrated into their artwork (see p. 55).



Mikroplastikpartikeln (fluoreszierende)
im Körper der Zuckermückenlarve



Kunstfaser-Kleidung
ist eine der
wichtigsten
Quellen von
Mikroplastik
in den Gewässern



Barrel of a Gun

visible/unvisible
Schnecken Zunge
Kieme - Kleidung



ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR-
UND MEERESFORSCHUNG

GEOMAR
Helmholtz Centre for Ocean Research Kiel

Leibniz-Institut für
Ozeanforschung
Warnemünde

CASL
VON
OSSIEFERTY
UNIVERSITÄT
OLDENBURG

Leibniz-Institut für
Gewässerökologie und Binnenfischerei
an der Humboldt-Universität Berlin

TECHNISCHE
UNIVERSITÄT
DARMSTADT

Fraunhofer
IKTS

DVGW
TZW
Technologiezentrum
Wasser

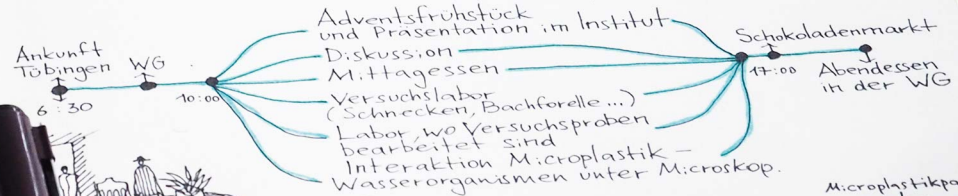
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ZENTRUM FÜR
UMWELTFORSCHUNG
UFZ

ERHARD KARLS
UNIVERSITÄT
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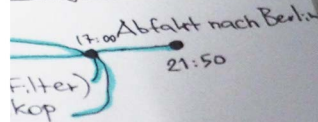
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Phase 3: Creation of the artworks

On the basis of their research trips, the students then faced the task of elaborating a hybrid concept of how to transform the scientific input into an artwork.

The artworks created in the course of this process were exhibited at the international festival *The Universal Sea - Pure or Plastic?!* in Budapest (2018) - organized by the Institute for Art and Innovation e.V. (Berlin, Germany) and Hybridart Management (Budapest, Hungary). The festival was co-funded by the Creative European Programme of the European Union.

übingen - Uni Tübingen



E. The Exhibition, Budapest (Hungary)

 THE UNIVERSAL SEA

HYB
RID
ART

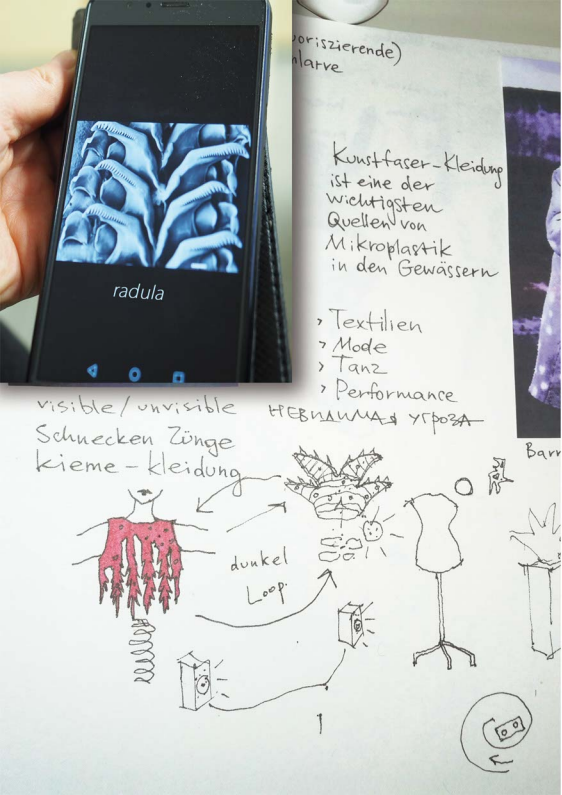
THE INSTITUTE
FOR ART AND
INNOVATION



Co-funded by the
Creative Europe Programme
of the European Union



The historical exhibition site in Budapest resonated with our project on "aquatic milieus": the *mikvah*, a former Jewish ritual bath.



RADULAmicroplastica

Janine Röfke

Teacher Training Programme Fine Arts (UdK)

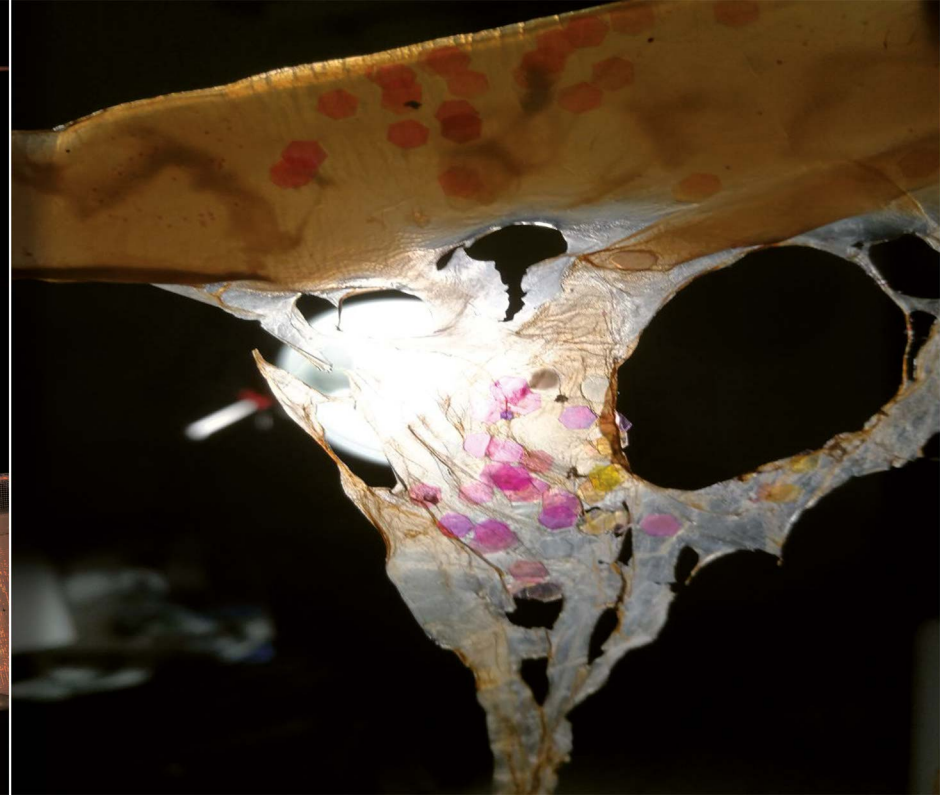
Scientific institutes visited during the research travel: Institute of Evolution and Ecology (EvE), Eberhard Karls University, Tübingen (Germany) - Prof. Dr. Rita Triebkorn; Center for Applied Geoscience (ZAG), Eberhard Karls University, Tübingen (Germany) - Prof. Dr. Christiane Zarfl.

My artworks took as a starting point the research travel to the two scientific institutes in Tübingen, which I visited together with my fellow UdK student Nadezhda Shikalova (Visual Communication). One aspect which was entirely new to us: Plastic pollution is not only an issue in the oceans but also in freshwater habitats (rivers, lakes), the environment which was at the center of the research conducted by our two institutes. We learned that it is actually through the canalization and rivers that many plastic particles (also those originating from cities located not at the coast but in the interior of a country) find their way into the oceans. One fact that particularly stuck to our minds from the visit at the Center for Applied Geoscience was that some of the microplastics which have been found in aquatic environments originate from washing textiles made of synthetic fibers. At the same time, it was the *interaction* between two materials - textiles and water - which somehow fascinated us. As will be displayed later, the concept of "interaction" became a leading motif throughout our artistic experiments. At the Institute of Evolution and Ecology, on the other hand, we got an insight of how freshwater organisms like daphnia and water snails are affected by microplastics. In this context we were particularly impressed by the individual mechanisms which these animals have developed to ingest their food (and therefore also microplastics). Especially the rasping tongue of the water snail - called "radula" - had caught our curiosity and was the starting point of a first artistic concept: It led to a sculpture which illustrated the impact of the impact of microplastics on freshwater micro-



organisms. At the same time, the sculpture represented a future species which co-exists with microplastics. We chose to depict it from a macroscopic view (enlargement), in order to make visible what normally remains invisible. With respect to the material used for the sculpture, we decided to work with living kombucha, a tea fungus. The idea was to create a partly "living" sculpture composed of a symbiosis of bacteria, mushrooms and different plastic materials. We put the concept into practice by letting the bio-cellulose of the kombucha mushroom slowly grow into diverse plastic particles which we had brought with us from the scientific institutes. The result was an experimental representation of the complex *interaction* between natural and artificial micro-particles. It finally turned out that this experiment was doomed to be of an ephemeral nature: The process of fermentation created odours which we judged to be too "delicate" in order to be presented in a public exhibition.

The title of my work *RADULA microplastica* actually describes a journey of aesthetic research, a series of artistic experiments: After the ephemeral kombucha-project, which we had developed as a team, I decided to pursue my work alone. Starting point of the new experiment was once again the rasping tongue of the water snail, this time approached from a different angle. The fascination of the "radula" simply did not let me go. As a first step, I embarked on an expedition into the Berlin parc "Rehberge" as I was in need of some slimy volunteers.

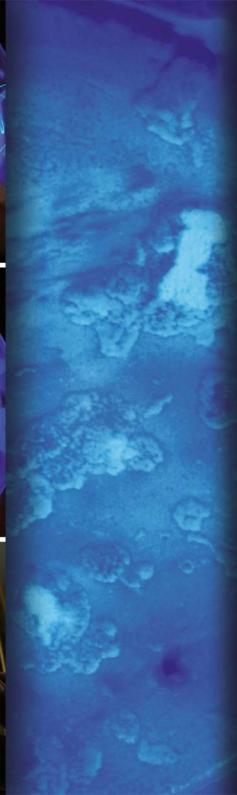
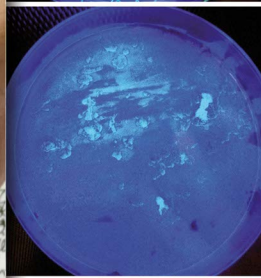




I managed to recruit quite a number of different snail species, such as grapevine snails and several kinds of nudibranches. At home, I had prepared petri dishes filled with agar-agar (a jelly-like substance, obtained from red algae). For a few hours, these dishes now became the new habitat and gourmet-restaurant of my new companions. At the center of my curiosity were the traces and aesthetical discoveries obtained by the snails' tongues which became visible on the agar-agar surface. They looked somehow like "driving lanes" – tire abrasion is one major source of secondary microplastics! After a week, I repeated this experiment in a slightly modified manner. This time I place at the bottom of the dishes, under the agar-agar, different kinds of materials: Algae from the Mecklenburg Bodden, microplastic particles which I had brought with me from the two scientific institutes, as well as a piece of plastic fishing line which I had found at a Berlin pond. It's important to point out, that the animals did not come in contact with these materials but were separated from it by the layer of agar-agar.

My goal was not to undertake a "real" experiment with a potential risk of harming the animals, but rather to create an aesthetic collage. By holding the petri-dishes against the sunlight, the driving lanes of the snails once again became visible, this time visually melting with the artificial objects. This effect could be reinforced by exposing the dishes under UV light. Once again it turned out, that it was impossible to preserve these objects as the agar-agar started to decay. They therefore constituted another ephemeral phase on my journey of aesthetic discoveries.

All of the snails were then released into their natural habitat – with the exception of one species: a pointed leopard slug (limax maximus) of which I had grown particularly fond. "Sasha", how I henceforth called "her", was chosen to accompany me on my next experiment, another exploration of the interaction between snails and mankind. Because of our emotional connection I'll continue to refer to Sasha as a "she" (and not as an "it").

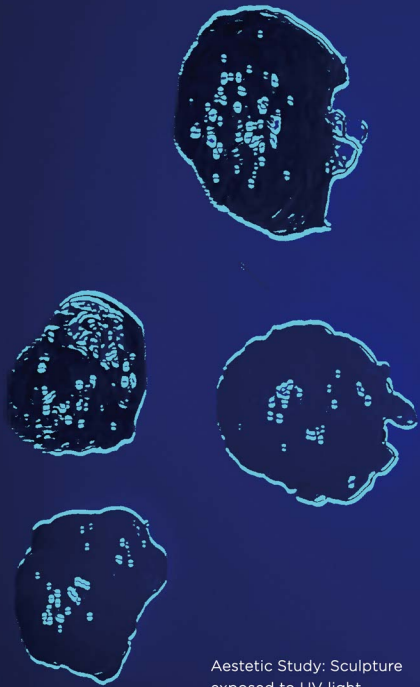




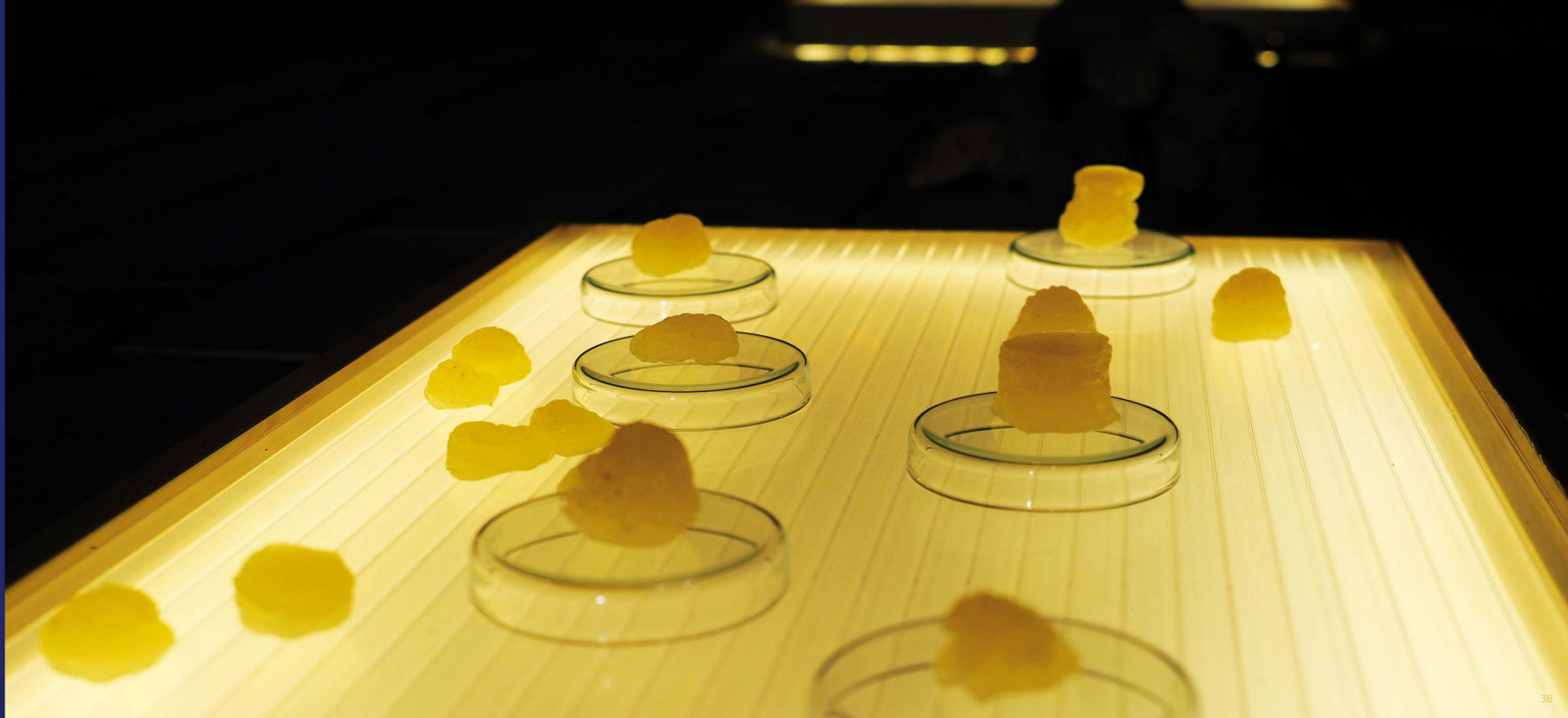
During the time already spent together I had found out that Sasha was particularly crazy about cucumbers. I therefore decided to serve her on a daily basis one piece of cucumber, each time of a size of approximately 5 cm. As Sasha was preferring the softer inner part, she always created a hollow space surrounded by the harder outer skin of the cucumber. The result was some kind of negative form representing her daily eating. This time, I wanted to make sure to create a series of objects which would finally last.

I therefore decided to fill out the hollow cucumbers with hot melt adhesive (HMA), also known as hot glue. What I particularly like about these sculptures is that they not only visualize the volume (of Sasha's daily food ration) but also the surface of her eating traces - and thus, indirectly, the fascinating mechanism of the radula.

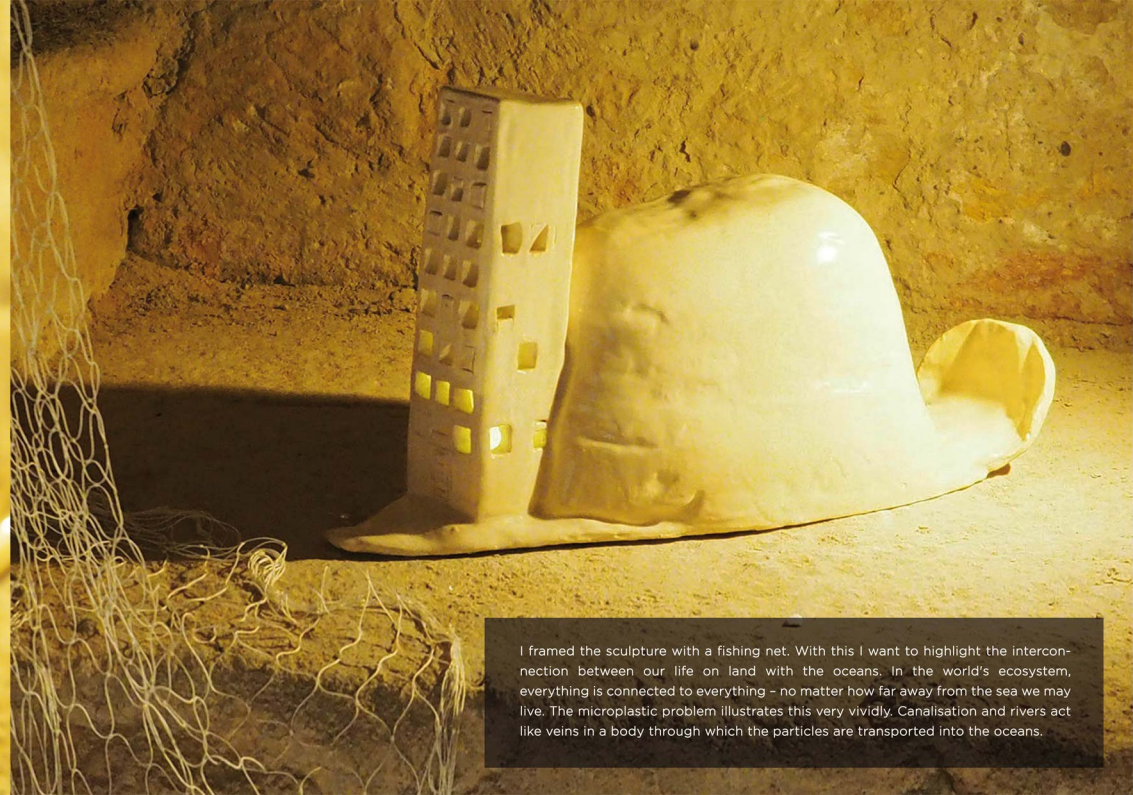
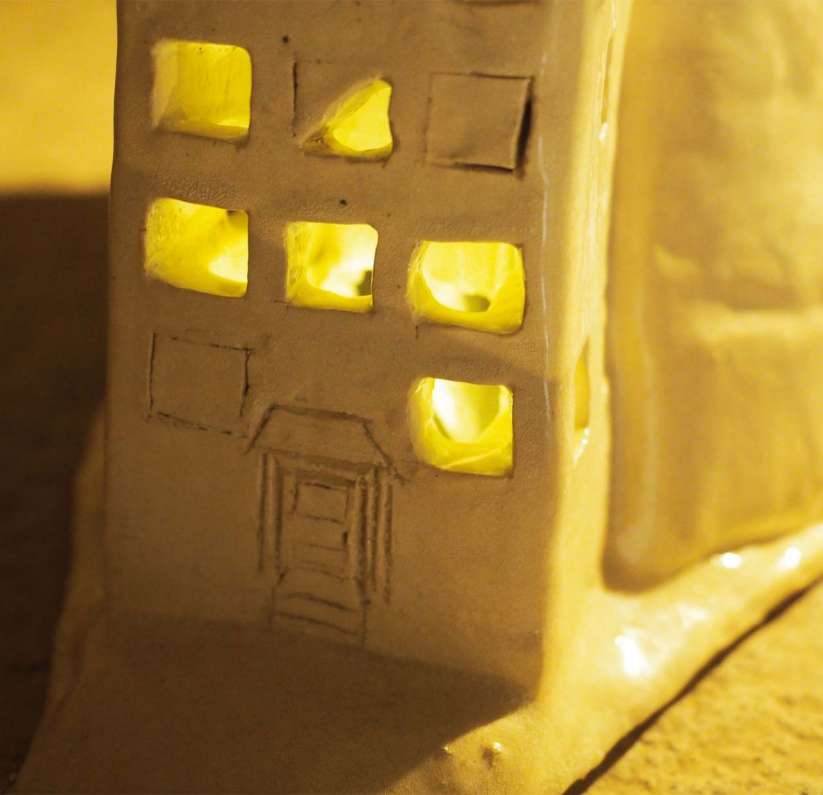




Aesthetic Study: Sculpture exposed to UV light.



As a complementary element to these objects, I finally created an illuminated sculpture made of clay. With respect to its shape, I decided to integrate the world of the snails as well as the one of mankind by depicting the snail's shell as a multi-storey building. It's again the interaction between two elements which comes into play. The sculpture constitutes a symbol for the massive impact of mankind on the environment, in this case, on micro-organisms like the snails. Through the illumination of the building I intend to highlight the dominant human perspective in this encounter, and our conscious as well as unconscious ignorance of other living worlds.



I framed the sculpture with a fishing net. With this I want to highlight the interconnection between our life on land with the oceans. In the world's ecosystem, everything is connected to everything – no matter how far away from the sea we may live. The microplastic problem illustrates this very vividly. Canalisation and rivers act like veins in a body through which the particles are transported into the oceans.

Since its launching in 2017, the pilot project *Microplastics and Medusae - Poetic expeditions into H₂O* has been meeting international attention from diverse domains: science, education, philosophy, art and architecture.

Roman Kroke also adapted the pedagogical concept for students on *school level*, once again in exchange with scientific institutes: Among others, he led intergenerational workshops about the plastic pollution of marine environments for a mixed group of students and teachers from Switzerland, the Réunion Island and the Shetland Islands as part of the Erasmus+ Programme of the European Union (2019, Geneva/CH). The Department F-A. Forel for Environmental and Aquatic Sciences (University of Geneva/CH) provided objects from their laboratories which served as artistic material for this workshop (2019, Geneva/CH). A similar approach was used in Kroke's workshop at the University of Bordeaux (FR) where scientists of the *EcoBIM* colloquium (an international network of researchers, economic as well as cultural players in the area of ecotoxicology in aquatic environments with a transatlantic axis) exchanged objects and expertise with a mixed group of students coming from four different schools.

