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Exploring Ecological and Material Sensitivity through Craft Practice in the Context of the Venice Lagoon

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Abstract. This article discusses multisensorial aesthetic experience of environmental materiality via a craft process. The locally situated study investigates the interrelations of humans and environment through soil. In focus is how craft practitioners use their material sensitivity to reflect the idea of interdependency in the context of the contemporary environmental discourse. This is done through presenting an artistic research project in which craft is used to explore the human imprint in a particular geological environment, the Venice Lagoon. The case study *Traces from the Anthropocene: Working with Soil* combines environmental research methods of contaminated soil and artistic research in the field of ceramic art. Craft making provides an embodied way to engage with the local environment. The cultural value and environmental disruption of the lagoon area forms a context for reflecting the aesthetic experience to better understand how we are active participants, in continuous flux with our material environment.

Keywords. Craft, contaminated soil, environment, ecological aesthetics, sensitivity.

INTRODUCTION

Ecology is a holistic principle that regards the environment and its organisms as interdependent systems. This article discusses the multisensorial aesthetic experience of environmental materiality via a craft process. In focus is how craft practitioners use their material sensitivity to reflect the idea of interdependency in the context of the contemporary environmental discourse. This is done through presenting an artistic research project in which craft is used to explore the human imprint in a particular geological environment, the Venice Lagoon. The case study *Traces from the Anthropocene: Working with Soil* combines environmental research methods of contaminated soil and artistic research in the field of ceramic art (see also Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]). The research was conducted by a group of artist-researchers from Aalto University,

Helsinki, who work in the realm of craft research. The project involved collaboration with experts on contaminated soil from the Finnish Environment Institute. The study was realized in the form of a research laboratory in the Research Pavilion¹ that took place in the context of the Venice Biennale in the summer of 2019.

Science offers statements that present the nature of facts. In a study done on interdisciplinary research across art and science Groth et al. (2019: 4) explain that, unlike in science, in the realm of arts and artistic research alternative thinking, politics and societal issues can be raised through subjective positioning. They explicate that in art, the immediate connection between experience and conceptualization can be presented through linguistic, material or conceptual metaphors. In this research, the sensitivity of the craft practitioners is used to closely perceive the materials in nature, using their physical, temporal and symbolic qualities to weave together an understanding of cultural and natural materialities.

Environmental concerns have brought a growing interest in the aesthetics of nature in relation to the built environment in the latter half of the 20th century (Toadvine [2010]: 85). Environmental aesthetics (Berleant [1998]; Brady [2003]; Carlson, Lintott [2008]) are considered to include not only natural environments but also human environments and human-influenced environments (Carlson [2019]). The field of ecological aesthetics or ecoaesthetics (Cheng [2013]; Hosey [2012]; Nassauer [1997]; Prigann, Strelow, David [2004]; Toadvine [2010]), as it is sometimes called, has risen to extend to the areas of aesthetics of nature (Hepburn [1966]) including natural objects, ecosystems, gardens and landscape architecture, environmental and earth art, architecture and urban planning (Toadvine [2010]: 85). There are several



Figure 1. Examining the soil in Sacca San Mattia, Murano in February 2019. Photo: Maarit Mäkelä.

distinct views in the area of environmental, ecological and ecoaesthetics, such as the natural environmental model (Carlson, [2000]), the aesthetics of engagement (Berleant [1992, 2013]) and the emotional arousal model (Carrol [2003]). Currently, there is an ongoing discussion on the relations of ethics and aesthetics (Carlson [2018]; Cooper et al. [2016]; Hettinger [2007]). Likewise, concepts such as green aesthetics (Saito [2007]; Salwa [2019]), aesthetic preservationism (Fischer [2003]) and aesthetic footprint (Naukkarinen [2011]) have been developed to understand how aesthetic awareness can help us understand and even take action towards positive environmental influence. We can aesthetically benefit from nature, but it is more essential that aesthetic understanding of the value of nature may cultivate moral responsibilities and thus have an environmental impact (Cooper et al. [2016]). In this article, we do not argue for any of these models but rather seek to evaluate the aesthetic experience we encountered during our study.

The underlying idea of the artistic research that this article discusses is that humans are in continuous flux with the environment and it is becoming difficult to separate pristine nature from environments that have experienced human impact. Aesthetician Arnold Berleant, a leading figure in the development of ecological aesthet-

¹ The Research Pavilion is an ongoing artistic research project created and hosted by The University of the Arts, Helsinki. Research Pavilion #3 was created in cooperation with following international partner institutions: Aalto University, Valand Academy of Arts at the University of Gothenburg, University of Applied Arts Vienna, and Interlab Hongik University Seoul in Venice in 2019.

ics, understands the human perceiver as an active participant embedded in the environment in an engaged and multisensory way (Toadvine [2010]: 85-86). He remarks that humans have not only affected nature pervasively, but that the very concept of nature is bound to historical and cultural traditions (Berleant [1992]: 167).

Artist and writer Nathaniel Stern (2018: 4) proposes ecological aesthetics as encompassing “thought-felt encounters with relations between all of matter and its ideas”. He does not limit “ecology” to the definitions around environmentalism or biological organisms. In his view, “[a]esthetics, both the term, and its practice, conjure experiment and experience, internal and external” (ibid.). He proposes that aesthetics and art practises are a way to explore the idea of togetherness to generate thinking on how to do things differently.

Berleant (2012: 55) explains that aesthetic sensibility and multisensory bodily engagement occupy key roles in the aesthetic experience of the environment. He understands sensibility as a perceptual awareness that is developed, focused and informed – being not objective nor purely subjective, but bound to natural, cultural and social contexts. Also, Icelandic environmental philosopher Guðbjörg Rannveig Jóhannesdóttir (2015: 141) calls for cultivating our sensibility to different kinds of environments, “be it glaciers or stinking dump sites”, to allow nature to affect us.

Contemporary craft processes require skill, knowledge and judgement, the same elements that have traditionally been regarded as elemental to the craft practice (Dormer [1994], Adamson [2007], Sennet [2008]). In this respect, craft can be understood as multisensorial meaning-making by hand. A craft person obtains a cultivated material sensitivity through her practice. Her sensibility is educated by experiential and emotional knowledge or tacit knowledge (Niedderer, Townsend [2014]: 637). The concept of tacit knowledge, as explained by philosopher Michael Polanyi (2009: 4, 7), is founded on the idea, that we “know more than we can tell”. Polanyi states that tacit knowledge forms a bridge between creativity and bodily processes of perception. A craft person’s aesthetic sensibility

related to her practice draws from tacit knowledge that is obtained through patient, time-consuming labour together with scientific knowledge, such as in our case ceramic material chemistry. It can thus be expected that, when confronting the materials in nature that the craft person is familiar with through her professional practice, she is both cognitively and perceptually aware of their presence and potential. This means that she understands how she might be able to use the found materials as part of her professional practice. For example, when encountering soil or stones that contain large quantities of iron, this can be perceived via the matt surface and deep brown or red colour. The ceramist knows that when fired, the colour will turn into a diverse range of browns.

This article presents the views of two practising craft persons and researchers in the field of ceramic art, both living in Finland and willing to situate and understand the meaning of their work in a context of research. For Riikka Latva-Somppi, the specific skills and knowledge related to the craft field are based on studies in ceramics, and through her professional practice in the field of glass art, she has also gained a solid understanding of glass materials. Maarit Mäkelä, on the other hand, has achieved her skills by working with clay for more than twenty years and has used soil direct from the natural environment in her previous artistic practice, one which has merged walking as an artistic practice with ceramics (Mäkelä [2019]).

As art historian, painter and critic Jale Erzen (2004: 22) writes, “a need to approach the earth with feeling and care can be seen in ...ecological aesthetics”. In the project *Traces from the Anthropocene: Working with Soil*, craft was used as a method for gaining knowledge of the way humans are in flux with environment. Combining the soil contamination research methods with craft practice enables us to think slowly and immersively (see e.g. Ings [2014]). The locally situated study investigates the interrelations between humans and the environment through soil. That is, we use our professional craft practice to understand the interrelated connections between materials, mak-

ers, and environment. The interrelations are aesthetic as they are mediated through perception. They are ecological as all beings are dependent on each other and sensitive of the smallest changes, and temporal as they are not static, but evolve over time (Erzen [2004]: 22). This project utilized the scientific environmental study that has been carried out in the Venice lagoon area, the immersive perceptual experience of the environment, and the educated material sensitivity of craft practitioners that helped us to understand the materiality in the chosen context. Craft making provided an embodied way to engage with the local environment (Mäkelä [2019]: 178). Our role is that of reflective craft practitioners, studying our praxis from the inside, as makers and researchers of our own artistic processes (Mäkelä, Latva-Somppi [2011]; Mäkelä [2016]; Nimkulrat [2012]; Groth, Mäkelä, Seitamaa-Hakkarainen [2015]).

Next, we will introduce the project *Traces from the Anthropocene: Working with Soil* by briefly outlining the anthropogenic contamination of the Venice lagoon, and by presenting the stages of the study.

CERAMISTS' VIEW CONCERNING THE VENICE LAGOON

Ceramists traditionally work with local soil. The context of the research is defined by the placement of the Research Pavilion in Venice. The Venice lagoon is a shallow water basin of about 550 km² separated from the open sea by barrier islands. The lagoon has been affected by human presence since around 160 A.D. The Management Plan of Venice and its Lagoon as a Unesco World Heritage Site (Zaccariotto, Dalla Tor [2012]: VIII) describes the area as a “symbol of coexistence between man and nature, between land and water, between culture and landscape”. The city and the lagoon landscape are a result of a unique interaction of humans and the ecosystem of their environment over time (Basili, Paulin [2012]: 22-23). Venice is built on 118 small islands forming natural canals surrounded by marshland. Philosopher

Max Ryyänen (2009: 10) presents the lagoon as a frame for the city supporting its “sense of harmony and experience of wholeness”. The map of the historical city has remained the same for centuries, and there are no suburbs surrounding city disturbing the balance between the cultural landmark and surrounding nature (ibid.). The city is admired for its architectural beauty enhanced by the particularity of its infrastructure that is defined by the situation in the lagoon.

For us, the area was familiar through tourism and short art-related visits to the city prior to the research. As aesthetician Arto Haapala (2005: 42-43) writes, the *genius loci*, spirit of the place of a city, is often defined by its history and atmosphere as a cultural milieu where a certain nature is specified by its geology and ecology. Venice’s distinctiveness is defined by the mélange of its overwhelming art treasures and historical architecture in its particular lagoon environment. The environmental research we read and conducted during the study opened up a different view on the area to that of an occasional tourist. Our senses were alert in a strange milieu as we adopted the “outsider’s gaze” (ibid.: 44). The “visitor’s curiosity” (ibid.) was multiplied when the cultural beauty of Venice was contrasted to the environmental data. Our daily life in Venice during the project was also influenced by the processes that we were involved in. We paid more attention to the colours and textures that derive from the local soil: the brick walls, the plastering of the houses, any earth that was visible in the paved city, the overall colours of the landscape, the pavement stones and the water.

Our project is founded in ceramic practices, in which it is traditionally elementary to work with local soil. As the context of our research was an urban-industrial area, working with the soil lead us to the traces of human actions. During our study, it became evident that the local soil is contaminated in various ways. The area of the lagoon is not affected by one disastrous environmental accident, but it presented itself as a continuous and accumulating environmental crisis. We understand that this is not just a local prob-



Figure 2. Gathering soil samples in Murano in February 2019. Photo: Riikka Latva-Somppi.

lem, but relevant at various levels and in multiple ways in all waters and land where humans are or have been. The lagoon can also be seen as a cousin to our native Baltic sea: both are large basins of water with particular biotopes affected by industry, ports, urban runoff and fertilizers.

The study *Traces from the Anthropocene: Working with Soil* proceeded in three phases. First, a pre-study was done to understand the level of contamination in the lagoon area. Secondly, the artist-researchers, namely the authors of this article, proceeded with fieldwork, taking soil and sediment samples. The samples were chemically analysed using the methods of soil contamination analyses. The soil was also examined by testing methods familiar to craft practice and ceramic material research. These methods include working with the raw material by hand to see and feel how it behaves, as well as milling and firing the soil to discover what colours and textures result from the soil. Thirdly, a research laboratory called *Earth Laboratory* was built in the Research Pavilion. Local brick clay was used to coil large ceramic forms, and finally the analysed soil and sediment samples were used to paint the ceramic vessels. The focus was not on making a comparative study of the “clean” and “contaminated” soil as a ceramic material per se, but to investigate how craft practice may reveal embodied relations of humans and

environment. In this article, we will focus on the aesthetic aspects of the entire study instead of discussing the artefacts that resulted from the processes.

Based on our ceramic practises, the geological research conducted was centred upon finding traces of heavy metals in the soils and sediments of our field work site, the Venice lagoon area. Heavy metals, naturally occurring in the Earth’s crust, are considered raw materials for industry. In ceramic practices, metals are used as ingredients in glazes and engobes, giving colours and textures to ceramic surfaces. Any metal is considered a contaminant if it occurs where it is unwanted, or in a form or concentration that is detrimental to the environment or human health (Panagos et al. [2013]: 2; Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]: 23). We adopted methods from the field of soil contamination research with the help of the scientists from The Finnish Environment Institute. Two field trips were made to gather local soil samples in the Venice area. The gathering and processing of the soil samples was an elemental part in understanding the soil, land and contamination.

The samples gathered were processed further in Finland, where we studied them in Aalto University’s Laboratory of Chemical and Metallurgical Engineering as well as in the Ceramic Studio. First, the samples were dried and sieved, as the finer soil often carries a higher load of contaminants (Giusti, Zhang [2002]: 53-57; Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]: 11). Inductive coupled plasma optical emission spectrometry-analyses (ICP-OES), a method common in analysing contaminated soil, was used to detect the level of heavy metals and arsenic in the soil. The samples were further processed in the Ceramic Studio’s laboratory, where the soil was milled into slips that can be used to paint on ceramics. Ceramic material samples were made to discover the colours and textures they produce. We did not search for a specific outcome for the surfaces as we gathered the soil samples. The effects we got depended upon the local characteristics of the soil, including the contaminants that the soil entails.



Figure 3. Preparing the ceramic test pieces for firing in the ceramic studio laboratory. Photo: Hanna-Kaisa Korolainen.

Based on the laboratory analyses, we continued our site-specific work in Venice. A research studio entitled *Earth Laboratory* was built in the Research Pavilion for the months of July and August. As Venice was one of the first pottery centres in Italy, dating back to the 6th century A.D., we resorted to the most primitive pottery technique, coiling, to make large vessels that cite the form language of ancient pottery. Local Italian brick clay from the Veneto area was used to coil the forms. Through the traditional techniques and materials, we placed the work in a historical context (Mäkelä, Latva-Somppi [2011]: 57; Mäkelä [2016]). The surfaces of the forms were then painted with the collected soil and sediments that had been processed into slips.

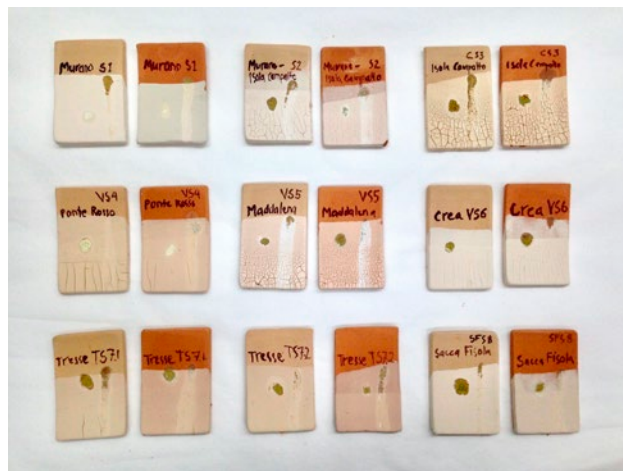


Figure 4. Ceramic test pieces made from local brick clay which display the colours and textures of the gathered soil samples processed into ceramic slips. Photo: Riikka Latva-Somppi.

THE ENVIRONMENT AND ITS CONTAMINATION

The Venetian lagoon is one of the most heavily researched coastal basins in the world due to its exceptional biotope (Sfriso et al. [2009]: 18). The environment is directly affected by various urban, industrial and agricultural emissions, making it an interesting macrocosm for environmental research (Vecchiato et al. [2016]). All human activity leaves traces on the environment. The major sources of anthropogenic pollutants in the Venice lagoon are agriculture, the industries of Porto Marghera, the sewage and urban runoff from the historical Venice and the glass works of Murano (Giusti, Zhang [2002]: 47; Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]: 8). Even the use of fragrances in personal care products escalated by the overtourism have been shown to affect the waters of Venice (Vecchiato et al. [2016]). For the environmental research of the area, we mapped three places of interest at the beginning of our study: the artificial canals of the historical centre, the industrial Porto Marghera area and the Murano islands. The places were selected as they represent different kinds of anthropogenic contaminants.

The first selected area was historical Venice. The sediment in the canals of the historical city is heavily affected by the urban runoff. The



Figure 5. Aerial image showing the three places of interest in Venice Lagoon area. Image: NASA [Public domain].

ancient sewage system is still partly discharging into the canals (Vecchiato et al. [2016]: 1363). This contributes to the sedimentation and the canals therefore need to be dredged regularly. Sediments dredged from the canals have formerly been dumped into the sea together with industrial waste (Giusti, Zhang [2002]: 47). All potentially dangerous and polluting industry has been moved away from the main islands of Venice over the centuries (Basili, Paulin [2012]: 27).

A vast industry has been present in the second area of interest, Porto Marghera, since the 1920s. The petro-chemical industry has dumped an enormous amount of chemicals in the sea before regulation began in the 1980s. Heavy metals such as mercury, nickel, cadmium, chromium, and lead are present in the sediments (Wenning et al. [2000]: 132; Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]: 25).

The third place of interest was the islands of Murano, with their history of glass-making since the end of the thirteenth century. Compared to the other industrial areas, the contaminants in its sediments are small, yet there is evidence of augmented levels of Fe, Mn, Zn, Cu, Cr, Pb, Ni, Ag and As (Giusti, Zhang [2002]: 47; Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]: 25). Artistic glass processes involve the use of various pollutants, including metals (Rossini et al. [2010]). It has been detected that atmospheric emissions from

the glass industries also heavily affect the air quality of Venice and its vicinity (ibid.). Choosing Murano as one of the places of interest also allowed us to focus on the traces of activities related to our own craft practice.

THE INTERPLAY OF SCIENTIFIC AND ARTISTIC METHODS

An essential part of the study was engaging in the practical transdisciplinary research processes in the local environment of the research, that is Venice. After reading the related environmental research and mapping places of interest, we proceeded to collect the soil and sediment samples, adapting methods of soil contamination studies. Multisensory engagement including vision, sound, touch and smell was prominent as we gathered and processed the soil. With the support of the environmental experts, we learned how to collect and handle the soil and sediments. Facing research methods that were unfamiliar to us, we were confronted with strangeness that made our senses more alert. Alongside the chemical analyses, we relied on the sensory analyses of the material as ceramic practitioners. There, our perception was informed by our knowledge of ceramic material chemistry.

One of the places we had decided to gather sediment samples, the Porto Marghera industrial area, was built in 1917 as an extension to the Port of Venice. The marshland was filled with sediment dredged from the Venetian canals. Over the years, the landfill was completed with industrial waste. Adding to the fact that the port area is founded on contaminated land, numerous studies indicate that industrial activity has since heavily polluted the air, soil, ground waters and the inner tidal canals (Zonta et al. [2007]: 529). In the course of our research, we learned that the contaminants in the Porto Marghera industrial area include not only heavy metals, but also organic chemistry, PAH, PCBs and dioxins (ibid.; Campaci [2019]). In fact, it is considered that this site neighbouring historical Venice, Porto Marghera, is now the second

most contaminated area in Italy (Campaci [2019]; Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]: 10).

We were informed that safety issues were of concern in collecting the samples and exposing the soil or sediment of Porto Marghera to the public in The Research Pavilion. Also, the reuse of dangerous waste could be done only by authorized enterprises and obtaining permits would be very difficult (Fuin [2019]). Understanding the gravity of the situation affected our perceptual experience of the environment, as will be explained further in the next chapters.

EXPERIENCING IN THE ENVIRONMENT IN MURANO

The problems involved in the aesthetic appreciation of damaged nature has been addressed by many aestheticians (Alcaraz Leon [2011, 2013]; Carlson [1976]; Leddy [2008]; Saito [2007]). As philosopher Maria José Alcaraz Leon (2011: 48) explains, a history of exploitation and degradation may frame a perceptual experience of damaged nature, but it does not determine whether it is positive or negative. Our observation was that the scientific data and the history regarding the contamination were important constituents of our experiences on the sites where we collected soil and sediment samples. One of our places of interest was Murano Island.

Via our professional networks in the context of glass-making, we had heard of beaches full of glass rubble and by following aerial pictures we found our way to Sacca San Mattia in Murano. By listening carefully to the locals, we learned that the island, like all islands named Sacca in the lagoon, is one of the many artificial islands of Venice. The shallow lagoon has been an ideal place to build islands from solid materials. Throughout history, officials have pointed out locations in the lagoon where residents and industries have been able to deposit their solid waste. The waste islands, complete with dredged sediments, have sometimes taken decades to form. Sacca San Mattia is built from solid waste from

the glass industry, domestic waste and dredged sediments from the sea and canals. However, depositing waste on the island has now been prohibited for decades, though in 2015, an entrepreneur was accused of dumping harmful waste on the location over nearly ten years since 2006 (Cecchetti [2015]).

In our working diaries, we have documented our experiences during the field trips. The visit to Murano was part of our first field trip to Venice, and it provoked the following thoughts:

Google maps leads us to the uninhabited island behind the glass factories. We collect our first samples in a public area by the pavement by the dock. A path takes us to the barren land in the centre of the island past the vietato (forbidden) signs. As we walk, we can feel glass crunching under our soles. There are denser areas of glass and construction waste, broken tiles and small bits of concrete covered with soil and rough vegetation in its wintry state. Grasses, bushes, small trees and rabbits inhabit the island. The shoreline is a colourful combination of tile, glass, concrete, driftwood and plastic. Sand and stones are in the minority there. The shoreline reveals the cross section of the island [where the sea had eroded parts of it away and the various layers of material that made up the island were revealed]. We leave the land quiet. With small plastic bags filled with soil samples in our backpack, we find our way to the vaporetto discussing ... the ugly trash of the wasteland and the chemically harmful industrial waste that has leaked into the lagoon. (Riikka Latva-Somppi's working diary: February 9th 2019)²

Aesthetician Yuriko Saito (2007: 57-58) states that aesthetic tastes and values of landscape place scenic wonders over marshes and wetlands. She also extends this idea to natural creatures, explaining that the commonly held aesthetic tastes raise visible, awesome and colourful creatures over those more nondescript and slimy. Furthermore, she applies the idea also to built environments and objects. The former statement can also be adopted when environmental damage is in question. We

² The diary excerpt was drafted in English but has been edited slightly for clarity.



Figure 6. The exposed layers in the shoreline of the island Sacca San Mattia, Murano. Photo: Riikka Latva-Somppi.



Figure 7. Glass waste in Sacca San Mattia, Murano. Photo: Riikka Latva-Somppi.

tend to react to visible or olfactory damage with more attention and emotion than to the harmful but unseen or not detected by smell. Unsightly litter easily creates more attention than invisible contamination. In Sacca San Mattia, the shoreline exposed layers of construction waste, plastic, soil and glass. The glass and the construction waste we encountered on the Muranese island is an environmental eyesore (ibid.: 214) and evoked strong feelings in us, although it is expected that the levels of contamination are small compared to those of Porto Marghera – the petro-chemical industrial area we have already discussed in greater detail in the previous chapter.

In the case of Murano, the sight was simultaneously alluring and repulsive. We were looking at a giant dump that had taken the form of an island. Broken glass pieces sparkled in the sun forming colourful blankets on the ground. Aesthetician Thomas Leddy discusses the aesthetic appreciation of waste in his essay *The Aesthetics of Junkyards and Roadside Clutter* (2008) utilizing Allen Carlson's (1976) concept of the thin and thick senses of the aesthetically pleasing. This could be one way to approach the controversial emotions that the aesthetic experience awoke in us. In the thin sense, we could experience the physical qualities of Sacca San Mattia, enjoying the island atmosphere, albeit a peculiar setting of "wild" nature

uncovering treasures from the history of the mecca of glass making. The thick sense would have to include also the scientific and ethical qualities and values that the environment expressed to us (Leddy [2008]: 3). Perceived this way, the appreciation of the island would have to be negative.

Leddy (2008: 4) explains further that we nearly never see things aesthetically as purely physical and without cultural associations. As naturally imaginative humans, we tend to always "see as", that is, look at the world with an imaginative projection that builds on our previous knowledge and experiences mixed with our sensory perception (ibid.). Thus, it was impossible for us to meet the island only as an experience of nature. Our sensory experiences were informed by our knowledge as material makers, the historical and social background and the scientific knowledge we had gained during the process. We saw it as a kind of sad beauty (ibid.: 7) that involved disgust and shame regarding human behaviour yet simultaneously an appreciation of the handicraft tradition of glass making.

Also, the history of island-making as an intriguing example of human intertwinement with materiality added to the puzzle of our experience. Mäkelä's experience was not informed by glass practice. She was so emotionally disturbed by the waste that she was unable to walk on the beach that was filled with



Figure 8. The soil on the beach of Sacca San Mattia, Murano. Photo: Maarit Mäkelä.

glass and construction rubble. Latva-Somppi possessed knowledge of glass-making, including glass chemistry and glass history, and therefore knew that glass is like artificial stone – once melted, the metals do not dissolve. She found the scenery disturbing yet a captivating mixture of cultural and natural materiality. Simultaneously, we both felt an appreciation of nature taking over the wasteland. Rabbits and seagulls inhabited the island, which is the largest piece of unbuilt land in the Venice area. In July, when we returned, hardy tall Aaron's Rods (*Verbascum thapsus*) had taken over and were growing straight out of the glass-covered soil.

Contamination analysis was performed on the soil and sediment samples we gathered in Sacca San Mattia. Although the heavy metals in glass are practically non-solvent, the chemical analysis of the soil revealed that traces of the glass industry were clearly present in the soil of the island. Levels substantially higher than background values of lead, silver and arsenic, all common in the glass chemistry, could be detected. The concentrations were not regarded as extremely harmful for human health, but even lower concentrations affect other lifeforms. The shells of many marine organisms accumulate high heavy metal concentrations. In a study done around the Murano Islands (Giusti, Zhang [2002]), the levels of arsenic, silver and chromium exceeded the guideline

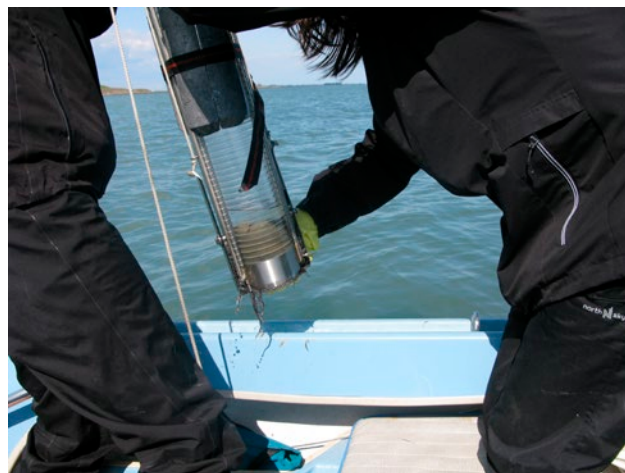


Figure 9. Collecting sediment samples near Porto Marghera in May 2019. Photo: Pauliina Purhonen.

values. Thus, our findings are in line with the earlier geological data gathered in the same area (see also Latva-Somppi, Mäkelä, Gündeşlioğlu [2020]).

GATHERING SEDIMENT AROUND PORTO MARGHERA

During our second fieldtrip, we were taken around the lagoon on a boat ride by a local fisherman in early May. The aim was to draw sediment samples from the bottom of the shallow lagoon in Murano, in historical Venice and at a water inlet leading to Porto Marghera.

The traditional view of the aesthetic appreciation of nature is strongly linked to the idea of landscape. The perception of landscape places the human subject in a position that distances herself from the environmental object (Carlson 2004: 66-68; Carrol [2003]: 371; Cooper et al. [2016]: 220). This visually centred view excludes textures, temperatures and smells, all of which can be said to be important components in appreciating nature (Carroll [2003]: 371). Following the idea of philosopher Merleau-Ponty (1964: 166), anthropologist Tim Ingold (2013: 72) discusses the remark “to see is to have at a distance” and comments that vision makes engaging with a thing or being possible without actually merging with it. He proposes that seeing opens a possibility to

immerse oneself sensorially whilst simultaneously distancing oneself. With hearing and touch at a close distance, the boundaries start to blur and finally dissolve all together, he writes.

The same happens with the olfactory sense. When the odour molecules enter our body, they practically and physically merge with us. Environmental philosopher and aesthetician Emily Brady (2003: 126) explains that, in the tradition of aesthetics, the mind – body dualism has resulted in the neglect of the senses, such as smell and taste, which are linked with the body. This has been backed by the claim that the experience of smelling is a sensation lacking the mental component of reflection and contemplation that are considered elemental to aesthetic appreciation (ibid.: 126, 143).

During the fieldwork in the lagoon, we identified an olfactory experience that supports Brady's view of multi-sensuous engagement. In contrast to the claims above, smells are aesthetically interesting, as they can have complexity, duration and structure as well as expressive qualities that revive memories and imagination (Brady [2003]: 126).

We head to Porto Marghera and Fusina, taking the water highway by the railway... The waterway is first in the open sea and then it dives into a wide canal surrounded by a semi-industrial area, junk yards and abandoned buildings along the way... We turn left at the end of the canal and slowly start to enter the industrial area. Our view is blocked by a high rusty wall that looms ahead of us. Our boat seems very tiny as we look up at the tugboats with black bottoms and bumpers created to survive heavy impacts with the docks... We get to a more open area surrounded by the industrial plants and suddenly the air is filled with a thick chemical odour. It feels as though the air is full of all the furans, PCBs, PAHs that I have been reading about. The smell is really evident. It is not stinky, nor overwhelming, but a dense and heavy mixture of plastic chemistry and sea breeze. It lasts for a while – maybe five minutes – but then slowly changes to the comforting smell of the sea... (Riikka Latva-Somppi's working diary. May 6th 2019)³

When studying the aesthetic dimensions of Venice, Ryyänen (2009: 118) presents water transport as one of the most aesthetically laden forms of everyday, a kind of sensual mobility where haptics and the slowly changing landscape merge with sounds and smell. Philosopher Wolfgang Iser (2003) describes his experiences with the open waters of the Pacific Ocean affording a deep connectedness with the world. Confronting vast waters beyond the human scale one feels small yet experiences a strong unity with the environment. Iser explains that in such experiences, one loses the sense of time and feels a sensory and worldly symbiosis that may help us reconsider the human condition (ibid.). Berleant (1992: 169-170), too, notes that when encountering the boundlessness of nature, we do so with awe and humility, in a perceptual unity of nature and human. We then are not looking at the environment, he continues, but being in it as participants. The participation is not only pleasant. When considering our boating experience, the feeling of connectedness in the sea environment was deeply disturbed by the particular sensory experience that made us very aware of human intertwinement with the natural environment.

THE ROLE OF SCIENTIFIC KNOWLEDGE IN OUR PRACTICE

Alcaraz León (2011) explains that some environmental aestheticians, such as Allen Carlson (2004) and Marcia Muelder Eaton (1997) claim that aesthetic appreciation of nature should be adequately informed by the scientific knowledge available, even insisting that aesthetic judgement cannot be correct unless we have both the perceptual experience and adequate scientific information of the natural object or environment in question. More traditionally, the Kantian view relies on disinterestedness, suggesting that aesthetic value can be seen as completely independent of other concepts. This view promotes the idea that aesthetic judgement of a damaged natural environment could be autonomous of its his-

³ The diary excerpt was drafted in English but has been edited slightly for clarity.

tory of ecological interruptions (Alcaraz León [2011]: 42-43).

In our project, we wove together scientific knowledge of the environment and our creative practice. Our observation is that our aesthetic judgement was not independent of the scientific knowledge but instead tightly interwoven with it. Furthermore, the more we knew, the more complex the situation appeared. Determining what an adequate level of scientific knowledge would be to inform the aesthetic experience proved to be impossible in the light of our study. The scientific research done on the area is so vast that thoroughly understanding the complicity related to the contamination seemed an endless task. Furthermore, damaged nature may not look or smell damaged. This is often the case with contaminated soil and water. As already hinted at earlier, our perception was also informed by numerous discussions with environmental specialists, local glass and ceramic professionals, chemists and local residents. The more knowledge we gained, the more it penetrated our perception as we looked at the landscape. A prominent example was the understanding of how numerous islands around Venice have emerged. We slowly understood that this was a local practice of getting rid of waste. It was still possible to enjoy the picturesque and appreciate the cultural richness surrounded by the natural beauty; however, we became more aware of all the nuances that suggested an ecological disruption. The cognitive process did affect the way we saw, heard, touched and smelled the environment.

CONCLUSIONS

The aesthetic appreciation of Venice is bound to the surrounding water (Ryynänen [2009]: 10). Venice's value as a cultural landscape was not diminished nor highlighted by the scientific data. Instead, the clarity of both the cultural value and environmental disruption provided a context in which to holistically reflect the intertwinement of the cultural and natural aspects of environment. It is bewildering and disconcerting to think of

the contamination hidden in the sediments surrounding the historical city. The common idea of environmental aesthetics is that aesthetic value is one aspect of a good environment (Naukkarinen [2011]: 90), but how does one deal with ruptures in the aesthetic experience caused by ecological disturbance? The aesthetic value of an environment is important, yet it is not autonomous of ecological and other values. Knowledge might not prevent us from experiencing damaged nature as beautiful, or change beauty into ugliness, but we believe it changes our perception. Alcaraz León (2011: 49) suggests that not only are ecological considerations connected with the aesthetic experience but that these two aspects may in fact render the overall experience more insightful. Here, it can be argued that our environmental awareness was influenced by the power of the aesthetic (Saito [2017]: 142).

Aesthetic experiences in nature are discussed in Jóhannesdóttir's thesis (2015: 137, 140) as the most primitive form of environmental consciousness. She explains that aesthetic experience can reveal our situatedness as embodied beings in "relation to nature, but it also situates us in relation to the society that we are a part of, the time and place and cultural conditions we are in". Understanding this relationality, through experience, carries a potential to evoke ethical obligations (*ibid.*). Whether the environment is natural or human influenced does not seem to be the key here. Walking on glass on an artificial island or being overwhelmed by a sudden chemical odour on a sunny boat trip expressed precisely this relationality to us. Jóhannesdóttir concludes: "standing at a vast stinking dump site ... can also be a very transformative experience that makes us aware of how all things are made from nature and yet thrown back at nature as garbage and pollutants that nature has a hard time re-integrating" (*ibid.*: 140).

In this article, we have discussed the multi-sensorial experiences we gained during the project. Design researchers Kristina Niedderer and Kathrine Townsend (2014: 625) state that craft is a discipline which is "distinct from art and design



Figure 10. Display of gathered and processed soil samples in the Research Pavilion. Photo: Tzuyu Chen.

through its reliance on the sensibilities of material and material understanding, on making and haptic perception as well as through its reflection on, and production of emotional values”. The power of craft lies precisely in its ability to create affect through materiality and embodied knowledge. Craft by nature is a contemplative practice. It is a time- and repetition-requiring practice in which the maker is intensely confronted with the materiality of her medium. It is also described as the ability to create one’s own materials, technique and knowledge (den Besten [2009]: 18-21). Craft resorts to the experience of the body (Mäkelä, Latva-Somppi [2011]: 57), which in this project corresponds with knowledge of the local environment and its contaminants.

In our research, craft was used as a method to gain knowledge concerning different materialisms in the current ecological state. We used scientific knowledge as a frame for our research in the Venice Lagoon area. Through field work, we gained an immersive experience in the environment. Our aesthetic experience was informed by environmental awareness and knowledge of ecological disruptions as well as the embodied and cognitive material knowledge of craft practitioners.

During our field work, we learned about the geological environment through scientific study. We went to the sites, dug and held the soil in our hands, often protected with plastic gloves, processed it in the laboratories and finally used



Figure 11. Maarit Mäkelä painting with slips made from gathered soil and sediment samples in the Research Pavilion in August 2019. Photo: Riikka Latva-Somppi.

it as material for ceramic practice. Ingold (2013: 4) explains that when a craft practitioner works with materials, she engages with close and attentive observation and perceptual acuity. This kind of studying and learning from the inside carries a potential for change (ibid.). As Berleant (2012: 56) states, we are not outsiders but active participants and integral constituents of the environment “acting and re-acting as parts of its constant flux”. This thought was reinforced as we collected the local soil materials on site and took them into use for our craft practice, thus participating in the extracting and remaking of the geological strata.

REFERENCES

- Adamson, G., 2007: *Thinking through Craft*, Berg, Oxford.

- Alcaraz León, M., 2011: *Morally Wrong Beauty as a Source of Value*, "The Nordic Journal of Aesthetics" 22, pp. 40-41. <https://doi.org/10.7146/nja.v22i40-41.5198>
- Alcaraz León, M., 2013: *Aesthetic Insight: The Aesthetic Value of Damaged Environments*, "Estetika. The Central European Journal of Aesthetics" 50(2), pp. 169-186. <http://aesthetics.ff.cuni.cz/archive/352/>
- Basili, K., Paulin, E. (eds.), 2012: *Venice and its lagoon. Unesco World Heritage Site. The Management Plan 2012-2018*, The Ministry of National Heritage and Culture and Tourism. http://www.veniceandlagoon.net/web/wp-content/uploads/2014/12/MP_volume_low_eng.pdf (Accessed 20.2.2019).
- Berleant, A., 1992: *The Aesthetics of Environment*, Temple University Press, Philadelphia.
- Berleant, A., 1998: Environmental Aesthetics, in Kelly, M. (ed.), *The Encyclopedia of Aesthetics*, Oxford University Press, Oxford. DOI: 10.1093/acref/9780199747108.001.0001
- Berleant, A., 2012: *Environmental sensibility*, in Thibaud, J-P., Siret, D. (eds.), *Ambiances in action / Ambiances en acte(s)* - International Congress on Ambiances, Sep 2012, Montreal, Canada, International Ambiances Network, pp. 53-56. <https://halshs.archives-ouvertes.fr/halshs-00745542/document>
- Berleant, A., 2013: *What is Aesthetics Engagement?*, "Contemporary Aesthetics" 11. <https://contempaesthetics.org/newvolume/pages/article.php?articleID=684> (Accessed 08.12.2019).
- Brady, E., 2003: *Aesthetics of the natural environment*, Edinburgh University Press, Edinburgh.
- Campaci, P., 2019: Waste Department of Veneto, personal communication, 8.2.2019.
- Carlson, A., 1976: *Environmental Aesthetics and the Dilemma of Aesthetic Education*, "Journal of Aesthetic Education" 10(2), pp. 69-82. DOI: 10.2307/3331917
- Carlson, A., 2000: *Aesthetics and the Environment: Nature, Art and Architecture*, Routledge, New York.
- Carlson, A., 2004: *Appreciation and the Natural Environment*, in Carlson, A., Berleant, A. (eds.), *The Aesthetics of Natural Environments*, Broadview Press, Toronto, pp. 63-75.
- Carlson, A., 2018: *Environmental Aesthetics, Ethics, and Ecoaesthetics*, "The Journal of Aesthetics and Art Criticism" 76(4), pp. 399-410. <https://doi.org/10.1111/jaac.12586>
- Carlson, A., 2019: *Environmental Aesthetics*, Zalta, E.N. (ed.), *The Stanford Encyclopedia of Philosophy*, Summer 2019 Edition, <https://plato.stanford.edu/archives/sum2019/entries/environmental-aesthetics/> (accessed 23.10.2019).
- Carlson, A., Lintott, S. (eds.), 2008: *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, Columbia University Press, New York.
- Carroll, N., 2003. *Beyond Aesthetics. Philosophical Essays*, Cambridge University Press, New York.
- Cecchetti, G., 2015: *Perizia su Sacca San Mattia Il pm: una discarica illegal*, in *La Nuova di Venezia e Mestre* 5.4.2015, <https://nuovavenezia.gelocal.it/venezia/cronaca/2015/04/04/news/perizia-su-sacca-san-mattia-il-pm-una-discarica-illegale-1.11182157> (accessed 4.12.2019).
- Cheng, X., 2013: *On the Four Keystones of Ecological Aesthetic Appreciation*, in Estok, C.S., Won-Chung, K. (eds.), *East Asian Ecocriticism: A Critical Reader*, Palgrave Macmillan. New York, pp. 213-228.
- Cooper, N., Brady, E., Steen, H., Bryce, R., 2016: *Aesthetic and spiritual values of ecosystems: Recognising the ontological and axiological plurality of cultural ecosystem "services"*, "Ecosystem Services" 21, pp. 218-229. <https://doi.org/10.1016/j.ecoser.2016.07.014>
- den Besten, L., 2009: *Deskilled Craft and Borrowed Skill*, in L. den Besten and M. Gaspar (eds), *Skill*, Think Tank, Gmunden, pp. 15-21.
- Dormer, P., 1994: *The Art of the Maker: Skill and Its Meaning in Art, Craft and Design*, Thames and Hudson, London.
- Eaton, M.M., 1997: *The Beauty that Requires Health*, in Nassauer, J. (ed.), *Placing Nature: Culture and Landscape Ecology*, Island Press, Washington, DC. pp. 85-106.
- Erzen, J., 2004: *Ecology, art, ecological aesthetics* in Prigann, H., Strelow, H., David, V. (eds.), *Eco-*

- logical Aesthetics: Art in Environmental Design: Theory and Practice*, Birkhäuser, Basel.
- Fisher, J.A., 2003: *Aesthetics*, in Jamieson, D. (ed.), *A Companion to Environmental Philosophy*. Blackwell, Malden, MA, pp. 264-276.
- Fuin, F., 2019: ARPAV, Personal communication, 8.2.2019.
- Giusti, L., Zhang, H., 2002: *Heavy metals and arsenic in sediments, mussels and marine water from Murano (Venice, Italy)*. "Environmental Geochemistry and Health" 24(1), pp. 47-65. <https://doi.org/10.1023/A:1013945117549>
- Groth, C., Mäkelä, M., Seitamaa-Hakkarainen, P., 2015, *Tactile Augmentation: A Multimethod for Capturing Experiential Knowledge*, "Craft Research" 6(1), pp. 57-81
- Groth, C., Pevere, M., Kääriäinen, P., Niinimäki, K., 2019: *When Art meets Science: Conditions for experiential knowledge exchange in interdisciplinary research on new materials* in EKSIG 2019, *Knowing Together — experiential knowledge and collaboration*. Conference Proceedings of International Conference 2019 of the DRS Special Interest Group on Experiential Knowledge, pp. 237-250. <https://www.researchgate.net/publication/336086885>
- Haapala, A., 2005: *On the Aesthetics of the Everyday: Familiarity, Strangeness, and the Meaning of Place*, in Light, A., Smith, J.M. (eds.), *The Aesthetics of Everyday Life*, Columbia University Press, New York, pp. 39-55.
- Hepburn, R.W., 1984: *Contemporary Aesthetics and the Neglect of Natural Beauty*, in Hepburn, R.W., *Wonder and Other Essays*, Edinburgh University Press, Edinburgh.
- Hettinger, N., 2007: *Objectivity in Environmental Aesthetics and Protection of the Environment*, in Carlson, A., Lintott, S. (eds.) *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, Columbia University Press, New York, pp. 413-437.
- Hosey, L., 2012: *The shape of green: aesthetics, ecology, and design*, Island Press, Washington.
- Ingold, T., 2013: *Making Anthropology, Archaeology, Art and Architecture*, Routledge, New York.
- Ings, W., 2014: *Embodied drawing: A case study in narrative design*, "Artifact" 3(2), pp. 2.1-2.10. <https://doi.org/10.14434/artifact.v3i2.3983>
- Jóhannsdóttir, G.R., 2015: *Icelandic Landscapes: Beauty and the Aesthetic in Environmental Decision-Making*, Háskólaprent ehf, Reykjavik. <https://opinvisindi.is/handle/20.500.11815/1206>.
- Leddy, T., 2008: *The Aesthetics of Junkyards and Roadside Clutter*, "Contemporary Aesthetics" 6, <https://contempaesthetics.org/newvolume/pages/article.php?articleID=511> (Accessed 25.10.2019).
- Latva-Somppi, R., Mäkelä, M., Gündeşlioğlu, Ö., 2020: *Traces from the Anthropocene: Working with Soil*, "RUUKKU - Studies in Artistic Research" 14. <https://www.researchcatalogue.net/view/697190/697191>
- Merleau-Ponty, M., 1964: *Eye and mind*, transl. by C. Dallery, in Edie, J.M. (ed.), *The Primacy of Perception, and Other Essays on Phenomenological Psychology, the Philosophy of Art, History and Politics*, Northwestern University Press, Evanston, IL., pp. 159-190.
- Mäkelä, M. 2016: *Personal exploration: serendipity and intentionality as altering positions in a creative process*, "FORMakademisk" 9(1), pp. 1-12. <https://doi.org/10.7577/formakademisk.1461>
- Mäkelä M., 2019: *A Nourishing Dialogue with Material Environment* in Fletcher, K, St. Pierre, L., Tham. M. (eds.), *Design and Nature: A Partnership*, Routledge, New York, pp. 173-178.
- Mäkelä, M., Latva-Somppi, R., 2011: *Crafting narratives: Using historical context as a reflexive tool*, "Craft Research" 2, pp. 37-60. https://doi.org/10.1386/crr.2.37_1
- Nassauer, J.I. (ed.), 1997: *Placing Nature: Culture and Landscape Ecology*, Island Press, Washington, DC.
- Naukkarinen, O., 2011: *Aesthetic Footprint*, "Aesthetic Pathways" 2(1), pp. 89-111.
- Niedderer, K., Townsend, K., 2014: *Designing Craft Research: Joining Emotion and Knowledge*, "The Design Journal" 17 (4), pp. 624-647. <https://doi.org/10.2752/175630614X14056185480221>
- Nimkulrat, N. 2012: *Hands-on intellect: Integrating craft practice into design research*, "Internationa-

- tional Journal of Design” 6(3), pp. 1-14. <http://www.ijdesign.org/index.php/IJDesign/article/view/1228>
- Panagos, P., Van Liedekerke, M., Yigini, Y., Montanarella, L., 2013: *Contaminated Sites in Europe: Review of the Current Situation Based on Data Collected through a European Network*, “Journal of Environmental and Public Health” 2, pp. 1-11. doi: 10.1155/2013/158764
- Polanyi, M., 2009/1966: *The Tacit Dimension*, University Chicago Press, Chicago.
- Prigann, H., Strelow, H., David, V. (eds.) 2004: *Ecological Aesthetics: Art in Environmental Design: Theory and Practice*, Birkhäuser, Basel.
- Rossini, P., Matteucci, G., Guerzoni, S., 2010: *Atmospheric fall-out of metals around the Murano glass-making district (Venice, Italy)*, “Environmental Science and Pollution Research” 17, pp. 40-48. DOI 10.1007/s11356-009-0122-8
- Ryynänen, M., 2009: *Learning from Venice. What a Unique City Can Teach about the Aesthetic*. University of Helsinki, Finland.
- Saito, Y., 2007: *Everyday Aesthetics*. Oxford University Press, Oxford.
- Saito, Y., 2017: *Aesthetics of the Familiar. Everyday Life and World-Making*, Oxford University Press, Oxford.
- Salwa, M., 2019: *Everyday Green Aesthetics*, in Kuisma, O., Lehtinen, S., Mäcklin, H., (eds.) *Paths from the Philosophy of Art to Everyday Aesthetics*, Finnish Society for Aesthetics, Helsinki, pp. 167-179. <https://www.researchgate.net/publication/333447207>
- Sennet, R., 2008: *The Craftsman*, Yale University Press, New Haven.
- Sfriso, A., Curiel, D., Rismondo, D., 2009: *The Lagoon of Venice*, in Cecere, E., Petrocelli, A., Izzo, G., Sfriso, A. (eds.), *Flora and Vegetation of the Italian Transitional Water Systems*, CORILA. Consorzio per la Gestione del Centro di Coordinamento delle Ricerche Inerenti il Sistema Lagunare di Venezia. <https://www.researchgate.net/publication/288267119>
- Stern, N. 2018: *Ecological Aesthetics: artful tactics for humans, nature, and politics*. Dartmouth College Press, Hanover, New Hampshire.
- Toadvine, T. 2010: *Ecological Aesthetics*, in Sepp, H.R., Embree, L. (eds.), *Handbook of Phenomenological Aesthetics, Contributions to Phenomenology* Springer Science+Business Media, pp. 85-91. <https://www.academia.edu/36965829/>
- Vecchiato, M., Cremonese, S., Gregoris E., Barbaro, E., Gambaro, A., Barbante, C., 2016: *Occurrence of fragrances in the canal of Venice*. “Science of the Total Environment” 566 567, pp. 1362-1367. doi: 10.1016/j.scitotenv.2016.05.198
- Welsch, W., 2003: *Reflecting the Pacific*, “Contemporary Aesthetics” 1, <http://www.contempaesthetics.org/newvolume/pages/article.php?articleID=19> (Accessed 18.11.2019).
- Wenning, R.J., Moore, D.W., Word, J., Della Sala, S., 2000: *Use of Sediment Toxicity Testing Methods to Evaluate Dredged Material Management Guidelines at Porto Marghera, Venice, Italy*, in Pederson, J., Adams, E. (eds.), *Dredged Material Management Options and Environmental Considerations*, Proceedings Of A Conference December 3-6, 2000, pp. 130-135.
- Zaccariotto, F., Dalla Tor, M. in Basili, K. and Paulin, E. (eds.), 2012: *Venice and its lagoon. Unesco World Heritage Site. The Management Plan 2012-2018*, The Ministry of National Heritage and Culture and Tourism. <https://docplayer.net/61016718-Dredged-material-management.html>
- Zonta, R., Botter, M., Cassin, D., Pini, R., Scatolin, M., Zaggia, L., 2007: *Sediment chemical contamination of a shallow water area close to the industrial zone of Porto Marghera (Venice Lagoon, Italy)*, “Marine Pollution Bulletin” 55, pp. 529-542. <https://doi.org/10.1016/j.marpolbul.2007.09.024>