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The Voice of Ice in the Turku Archipelago – Narrating Icegraphy with Environmental Ethnography

Jaana Kouri and Kirsi Sonck-Rautio

Abstract: Winters in the Turku archipelago have become milder. During the last few decades, inhabitants have witnessed a relatively sudden loss of permanent ice cover during the winter months. In our chapter, we use ethnographic tools to conceptualise local skills, experience-based knowledge and tacit knowledge concerning ice as an environmental heritage – and explore the role of nostalgic narration in the process of environmental heritage, including from an historical perspective, in times of change. We examine nostalgic narration as future-oriented action in the production of environmental heritage. This chapter builds on prior ethnographic fieldwork done by the authors in the Turku archipelago. Our methodological starting point is to assess how environmental ethnography is produced in intra-actions between human and non-human actors, such as ice. We examine the myriad ways in which archipelago dwellers have defined ice and the presence of ice in different local places. We also describe how people in the archipelago have encountered ice over numerous decades and how they have learned to utilise and co-exist with ice – how they, for example, found paths when walking on the ice, how they allegorised drowning in their nostalgic narration practices or how ice conditions have impacted fishing practices in the archipelago.

Keywords: ice, icegraphy, aquagraphy, environment, ethnography, nostalgia, narration, environmental heritage, archipelago, the Baltic Sea

1 Introduction

The Turku archipelago, consisting of approximately 20 000 islands, is part of the Baltic Sea, more specifically the Archipelago Sea area. The Baltic Sea contains brackish water and is connected to the Atlantic Ocean through the Danish straits. As the Archipelago Sea is in the Northern Hemisphere, much of it tends to freeze in the winter. However, the effects of global warming can be detected in the Baltic Sea area, and the duration and the thickness of the ice cover, as well as its extent, have notably decreased during the last few decades (e.g. Lépy, 2012; Korpinen et al., 2019). The inhabitants of the Archipelago area have both witnessed and experienced the diminishing ice and how the environment and landscape in which they are living has changed, perhaps even drastically.

In this article, we discuss the ways in which archipelago dwellers have intra-acted with ice and how this intra-action has formed over time. We ask what kinds of specific environmental knowledge these intra-actions have produced and how this knowledge has been transformed into *icegraphy* through local narratives. In addition, we explore how local knowledge can become *environmental heritage*, which, in turn, could be applied when adapting to changing environmental conditions. From a methodological standpoint, we apply *environmental ethnography*, focusing especially on the intra-actions between human and icy landscapes. We build on our studies based on ethnographic fieldwork in the Turku archipelago in southwestern Finland (see Fig. 1; Kouri, 2017; Sonck-Rautio, 2019). Our data consist of ethnographic materials gathered primarily from the communities of Lyyrty and Rymättylä, both of which have strong traditions and livelihoods long connected to the sea, such as fishing and piloting. Cold winters and the freezing Archipelago Sea created a landscape where several species, including humans, have interacted and resided. Ice proved to be an essential element because it enabled, e.g. seal hunting, but also winter fishing. During the winter months, when the archipelago was covered with a thick and vast ice cover, archipelago dwellers practiced winter-seining – a form of fishing where people harvested schools of Baltic herring under the ice cover through holes in the ice with enormous seines. Winter-seining required a large work force, as the catch could often weigh many tonnes. Winter-seining was a communal form of fishing, and it was practiced at least from the 14th century onwards. Winter-seining had, however, lost its importance by the 1990s due to such global trends as urbanisation, globalisation and increasing competition (e.g. Sonck-Rautio, 2018, 2020).

Fig. 1. The Archipelago of Turku

Besides fishing, the sea provided its coastal dwellers with other livelihoods as well, such as seafaring and piloting. In the archipelago, people often made an adequate living by combining several types of work, such as piloting, small-scale farming and husbandry, and hunting and fishing, according to the rhythms of the seasons. In Lyyrty village, piloting took on more importance in the twentieth century (Kouri, 2017). Foreign ships are required to employ pilots in Finnish territorial waters, as the Archipelago with its narrows and rocks is a quite challenging area to navigate. In previous centuries, local peasants with detailed knowledge of the waterways served as pilots. Nevertheless, in 1961 the Finnish National Board of Navigation abolished the pilotage system in Ströömi, a narrow straight that had

traditionally been an important passage through the islands, and it also closed the Lypyrtti pilot station, thus requiring ships carrying larger cargoes to seek deeper waterways for safety reasons. Consequently, the village lost work and became almost solely a summer resort area for the families that had to leave to find new employment and for other people who came between the 1920s and 1970s (Kouri, 2017). The local Ströömi waterway has had a fundamental impact on village life. Ströömi contains narrow passages that affect the formation of strong currents, which affect when, how and where the water freezes and when it is possible to cross Ströömi during the winter period.

Fig. 2. Lypertö island, in Lypyrtti village. Thin ice that does not break apart due to the powerful waves is called 'calf skin' (photo: Jaana Kouri, 2008).

The ethnographic material utilised here consists of interviews, participant observation, field journals and auto-ethnography. The material was gathered in the years 2006–2008 and between 2015 and 2016. Altogether, we conducted 69 semi-structured in-depth interviews, where the participants were given an opportunity to freely address the issues they felt meaningful for them. The producing of ethnographic material was a reciprocal signification process in many ways; it was an act of interaction and dialogue between the locals, the environment and the researchers (Kouri, 2016). The interviews revealed that the participants most often wanted to reminisce about the changing circumstances involving ice and winters. During the ten-year span of our fieldwork, we observed clear changes in the water environment. Local and global problems intersect and become intertwined in such water bodies. Changing conditions – the eutrophication of water, the milder winters and the concomitant loss of some primary local livelihoods, such as piloting in Lypyrtti village or winter-seining in Rymättylä – caused the locals to seek continuity with their past way of life. Piloting and winter-seining are both livelihoods entailing a special relationship with the archipelago's water environment. People recollected how the preceding generations had managed under different circumstances, i.e. *practiced the place* (de Certeau, 1984). They recalled, for example, how past generations had observed nature, used rowboats or walked on the ice during the wintertime. Even though the current summer residents of Lypyrtti have roots in the archipelago, they rarely live in the village year round, and thus, they do not experience the cycle of the seasons in the archipelago. Similarly, the old winter seiners in Rymättylä who used to have skills and knowledge regarding this traditional livelihood are ageing, with many of them already deceased. People are afraid of not only losing the ice or

the clear water, but also of losing their knowledge of how to adapt to the environment. Such concerns also had an impact on what and how the participants in the research study narrated the environment and their ways of acting in and with nature.

In this chapter, we first introduce the concept of environmental ethnography in section 2, especially how we view ecology, intra-action, environmental heritage and local ecological knowledge in relation to this method. In section 3, we discuss nostalgic narration and its contribution to the environmental heritage process. Section 4 is dedicated to icegraphy – namely, how the locals narrated ice and how it was present in their everyday lives and their landscapes. In section 5, we conclude by focusing on how icegraphy, when contextualised with environmental ethnography, can contribute to understandings of how people adapt to and how scholars study future changes in local landscapes.

2 Environmental Ethnography

2.1 Ecology and Intra-action

Our methodological starting point involved exploring how environmental ethnography is produced in intra-action and encounters between human and non-human actors, such as ice. Intra-action as a term is used to replace interaction and signifies that the entangled agencies are mutually constituted and that such agencies do in fact emerge through intra-action rather than preceding it (Barad, 2007, p. 33). For us, these intra-actions and encounters occur within landscapes (see Haraway, 2008; Aisher & Damaradan, 2016), which in our context is the wintry coastal areas and islands of the Archipelago Sea. We employed environmental ethnography to understand the ways in which archipelago communities can adapt to changing environments. In this section, we focus on the part played by water, especially ice, in the making and unmaking of fluid worlds, or waterworlds (see Hastrup & Hastrup, 2017). We examine the human environmental relationship, the *connection* to one's landscape, the main environmental actors, their voice in ethnographic studies and the material co-produced by them. We apply the idea of 'polyphony' in ethnographic fieldwork – the many different 'voices' present in the actual discussions and dialogues through which ethnographic understandings are constructed (Gupta & Ferguson, 1977, pp. 2–3). We are especially interested in the voice of ice in narrations. Ice as a non-human actor is in many ways entangled in the lives of human beings – and all beings – and in the nostalgic narration about

disappearing wintry ice landscapes and living with them. We examine the myriad ways in which archipelago dwellers have experienced ice and how ice has impacted and shaped different local places. We also describe how people in the archipelago have encountered ice over many decades and how they have learned to utilise and co-exist with ice.

The longing for a happy place outlined in another time has been considered characteristic of modern times, when it has been possible to think that things could be different and that the current situation is not the only possible one. Nostalgia is, above all, a modern concept (Grönholm & Paalumäki, 2015; Vihma, 2021). Hence, we examine nostalgic narration as a future-oriented act of environmental heritage production, one that advocates for adapting to environmental and climatic changes both now and in the future. The concept of heritage refers to forms of action, modes of doing and ways of being engaged in the world (Guttormsen & Swensen, 2016, p. 5). Heritage is dynamic: it is constantly evolving, based on what people perceive to be meaningful in the past and present and worth preserving, or nurturing, for the future. At the same time, it is a performance in which certain cultural and social meanings and values are identified, reaffirmed or rejected (Smith, 2011). The concept of environmental heritage refers to the process of acquiring the experience, local ecological knowledge, experience-based knowledge, tacit knowledge and skills constructed through living and acting in a particular environment in a particular point of time.

We are interested in the meanings that emerge through narration, in what sociologist Bruno Latour calls ‘matters of concern’. Latour emphasises that this allows us to renew from top to bottom the very scene of empiricism – and hence the division between ‘natural’ and ‘social’ (Latour, 2005, p. 114). Similarly, we do not draw a line between ecological relationships and networks of meaning-making – or nature and culture – but instead see that meanings arise in practical actions, which is essential to experience-based and tacit knowledge. We explore Ingold's idea of a ‘dwelling perspective’: humans are brought into existence as organism-persons within a world, an environment or a lifeworld that is inhabited by manifold kinds of beings, both human and non-human. Therefore, relations among humans, which we are accustomed to call ‘social’, are but a subset of ecological relations (Ingold, 2000, pp. 5 & 153).

By paying attention to cultural dimensions of the ‘social’ and claiming agency for human and nonhuman agents, we want to stress that ‘ecology’ as a term refers to the totality of relations among human agents, nonhuman agents and their environment, as was formulated by

ethnographer Phillip Vannini (2009b, p. 73). In a similar vein, multispecies ethnographers have used the Deleuzian term 'assemblage' (Deleuze & Guatarri, 1980), or 'entanglements' (Kirksey & Helmreich, 2010), to highlight that ecology is not a structure but an ongoing process. Perspectives need to be sensitive to change, adaptation, integration, reintegration and disintegration, and rather than focusing on agency alone, it is worth turning to creative ways in which humans and non-humans relate to one another. Understood in this way, agency is not limited just to individual actions, but rather should be viewed as the diffused potential for action present in a particular social and material setting. In this sense, to speak of diffused agency is also to invoke an ecology of interaction from the level of practice to the level of conceptualization (Vannini, 2009b). What is central to such a view is an understanding of sociality and culture as a form of making, doing and acting as well as an understanding of sociality through pragmatic, sensuous intentionality and interactions between human actors and non-human actors (Vannini 2009a, p. 4). Nature and culture should not be thought of as distinct from each other. We see them, like the philosopher Karen Barad (2003), as a single holistic world in which nature and humans act together in the same process of meaning-making.

2.2 Producing Local Ecological Knowledge

Making sense of meaning-making in socio-ecological processes implies paying attention to knowledge as communication – including with non-human actors. It emphasises the importance of 'knowing with' and 'knowing how', complementary to 'knowing that', which involves skills that are difficult to put into words. Such cultural knowledge connects global environmental changes, such as climate change, with local changes, since this type of knowledge is constructed in connection with tangible changes in nature, including the prevalence of extreme climatic phenomena, changes in flora and fauna, and seasonal changes. The construction of heritage is thus a material-discursive process. In environmental heritage, the different ways of knowing – the 'know what', 'know why', 'know how', 'know who' and the 'know with' – are all interconnected with each other (see, e.g. Polanyi, 1966; Polanyi & Prosch, 1975). 'Knowing with' the environment draws on the effort to overcome the conventional dichotomy between naturally given and culturally constructed worlds. For example, a particular landscape becomes part of us through living in it. It is through this relational and compositional context of people's engagement with the world that each place draws its unique significance (Phillips, 2005).

Ethnography especially throws into relief intangible cultural heritage, which represents the living actions, skills and thoughts present in and between individuals. It is a form of activity that is both purposeful and unconscious of its end goal and that contains the power to change the world (Siivonen, 2019). In ethnography, textualisation, particularly a researcher's writing about and in the field, has been at the centre of research for decades (see, e.g. Kouri, 2017). A good example here is anthropologist Clifford Geertz's (1973/1993) idea of culture as a kind of text, with the ethnographer's aim being to write a *thick description* of it. Ethnographer Karen McCarthy Brown (1991/2001, p. 14) notes that a researcher should strike a balance between the tradition of interpreting one – the researcher's – meaning-making network and another, aesthetically different meaning-making network among interviewees in the field. With an emphasis on co-producing meanings, we want to highlight the voice of non-human actors through use of the concept environmental ethnography. We use the concept here to describe that kind of ethnography that specifically examines the ways socio-ecological processes become intertwined, informing the environments and experiences of those environments in the past, present and in the future.

Environmental ethnography is both a method and a methodical attitude that makes it possible to examine the ethnographic heritage process of meaning-making networks. We take seriously in this account, first, different kinds of knowledges, and second, all the actors that participated in the study, whether through ethnographical interviews or researcher observation. We examine how various actors mediated information in the ethnographical process and influenced one another, thereby extending conceptualisations of agency from humans to nonhuman actors. By doing that, we examine in detail their ecological relations, e.g. their actions and co-actors in the environment (see Ingold, 2000).

Local ecological knowledge is often defined as tacit and experience-based knowledge that is acquired by spending a significant amount of time in a specific environment, and thus, observing the surroundings in detail. This knowledge is predominantly transmitted orally and through everyday practices (e.g. Cruikshank, 2005, p. 9). Local ecological knowledge is often also referred to as traditional ecological knowledge, and although the knowledge we describe here could be regarded as traditional, the holders of this knowledge can very well have knowledge that is mixed with scientific knowledge they acquired through the education system. This means the knowledge may not only be traditional knowledge. Therefore, we find local ecological knowledge to be the most precise term to apply here. Since local

ecological knowledge is built upon local observations of the environment – even when the changes are global – it also offers a vast contextual way of comprehending the landscape and interconnections and relationships within the environment.

3 Nostalgic Narration

When people talk about dwelling and living in the landscape, it is a narration of their *spatial practice*, as Michel De Certeau (1984) has termed it. Humanistic researchers have viewed landscape as a fundamental reference system in which individual consciousness of the world and social identities are anchored (Tilley, 1994, p. 40; see also Tilley & Cameron-Daum, 2017). We depart here from Ingold's (2000) idea that meaning is intrinsic to the contexts in which people pragmatically engage with the world. He basically rejects the divisions between inner and outer worlds – respectively, of mind and matter, meaning and substance. For him, the focus is the familiar domain of our dwelling and how, through living in it, the landscape becomes a part of us, just as we are a part of it. It is through this relational and compositional context of people's engagement with the world that each place draws its unique significance.

In this section, we explore the voice of ice in narration. Ice is an actor in the oral history of those dwelling in the archipelago; it helps highlight the functional aspect of environmental relations as epitomised in stories and performances. Although ice is one of the states of water, in the archipelago the surface water areas are generally not in a total liquid state or in the form of solid ice; rather, surface water constantly varies between these states. Ice as a non-human actor participates and has participated in the lives of those dwelling in the archipelago in both the present and past, and it features in the contemporary narration of disappearing wintry ice landscapes and living with such changes by villagers.

The latest studies in oral history have pointed to the importance of expressions of emotion during the narration (e.g. Tuomaala, 2006; see also Boym, 2001; Grönholm & Paalumäki, 2015). Emotions can be interpreted as signalling what the narrators consider meaningful. Emotions manifested themselves in many of our interviews included anxiety or nostalgia over losing one's livelihood and especially the way of life connected to the watery environment. This has occurred due to various global and local trends, or – as was the case in Lypyrtti – due to the cessation of piloting, which meant locals could no longer live year round in the village. As Svetlana Boym (2001, p. xv) writes, at first glance it looks like nostalgia is a longing for a place, but actually it is a yearning for a different time. Fred Davis has concluded

that nostalgia is both an emotion and a form of consciousness, basically a cognitive process. When people understand that they are engaging in nostalgia, they have moved from the level of emotion to the level of verbalisation, to recognising the relevance of their moods in relation to a changed reality (Davis, 1979, pp. 16–29, 122–124). Without taking a position on the nature or levels of the process, we emphasise the role of nostalgic narrative in ethnographic research. Winters characterised by ice became emblematic of a time no longer the present, but a time reminisced about, a nostalgic time of the past. The nostalgic narration of the interviewees offers ways to participate in negotiating possible wintry futures.

Nostalgic narration about the past takes place when a lifestyle or practice important to people's identity is threatened. It occurs when the lifestyle or practice is on the threshold of being lost but is still barely here (Korkiakangas, 2006, p. 140). Ethnographic texts of the 20th century have been criticised for constructing an eternal 'ethnographic present', for creating an unchanging image of culture that became solidified in the past, when cultures are in reality in a constant state of change. Such texts also promoted the concept of linear time, viewing those cultures as separate, unchanged islets to which there ultimately was no hope for return. The loss of traditional cultures is rooted as allegory in the ethnographic way of writing, but also in the way of reading it. While cultures do disappear, the researcher should be careful about promoting the idea of 'disappearance' in their text. Similarly, scientists are warned of the idea of saving culture contained in the pastoral, a narrative form that emphasises the rural idyll built into the process of textualisation. However, it becomes a school of thought when such writing or textualisation is understood to depict a collective culture rather than a produced dialogue, as is the case with oral history (Clifford, 1986, pp. 111–113). Our ethnographic study is an example of oral history.

Nostalgia is not always about the past. It can be retrospective but also prospective. Fantasies of the past determined by needs of the present have a direct impact on the realities of the future (Boym, 2001, xvi). Boym talks about restorative nostalgia and reflective nostalgia. In our research, the nostalgia expressed by our interviewees was of the second type. According to Boym, reflective nostalgia cherishes shattered fragments of memory and temporalises space. It can be ironic and humorous and reveal that longing and critical thinking are not opposed to one another, as affective memories do not absolve one from compassion, judgment or critical reflection (2001, pp. 49–50).

4 Icegraphy – Living with Ice

4.1 Narrating with Ice

Icegraphy is a subcategory of aquagraphy. Each state of water introduces its own *-graphy* to the discussion. The voice(s) of ice can be heard in many ways. According to the Oxford English Dictionary (OED), the English suffix *-graphy* comes from the Greek *-graphia*, ‘writing’. Some words with this ending denote processes or styles of writing, drawing or graphic representation, but more commonly they are names of descriptive sciences. Icegraphy incorporates all aspects. It is a type of art and science of ice as well as a process or method of writing or narrating about/with ice. More specifically, introduce here the term *icegraphy* to depict how ice writes its myriad stories into the landscape, and reciprocally, how humans read ice through interacting with it. Icegraphy has a dual purpose in this study; it also describes the way we apply environmental ethnography to re-read and re-interpret our ethnographic materials, i. e. interviews, observations and research diaries from the viewpoint of ice. The icegraphy of nostalgic narration included different themes based on the types of action they described: sensing and reading ice when walking on ice, finding different routes over the ice or falling through the ice, crossing molten or open waters between ice zones, or drilling through the ice for winter fishing. It is good to remember that one’s relationship to the environment is a historical phenomenon: it changes according to the environment, the place and the time. At the same time, different people may have a different relationship with the same environment and its specific actors, such as ice.

4.2 Sensing and Reading the Ice

Many participants talked about ‘reading the ice’ (*jään lukeminen* in Finnish) and ‘sensing the ice’ (*jään kokeminen* in Finnish). The reading of ice not only involves watching; it is a multisensory act in the present moment. The interviewees talked about sensing and experiencing the ice through, for example, testing the hardness of the ice with a special kind of stick with a sharp metal end. At the same time, they spoke of the need to be conscious of the water level during the day and of being concerned about the shape of the bottom of the water place. They stressed how the environment changes every day, and that the seasons are

never the same. The strength of the ice may change throughout the day: ice is usually stronger in the morning, after the freezing night, and weakest in the afternoon. Ice might, for example, be quite durable at sunrise in springtime, but in the afternoon only be deceptively hard under the influence of heat. The stream 'eats' ice from underneath. There is no single or regular circumstance in which, by just following the ice, one could find the most durable route each time or always at the same point. It is important to always search for the appropriate path by sensing and testing the ice (Kouri, 2017). Snowfall has an impact as well – the ice might not thicken under a thick layer of snow. To find the safest and thickest ice, the new snow should be cleared away with wooden sticks, and only the next morning – given that the temperature dropped below freezing at night – the ice will be safer to walk on (TYKL/aud/1267). Here, local experience-based knowledge, 'knowing how' and 'knowing with' are indispensable. Intangible environmental heritage changes when respective environmental conditions change. One must be able to forecast changes in the weather and know their effects. Observing changes in the environment and adapting to them is an important aspect of the environmental heritage of those living in the archipelago.

During the winter months, ice cover can be more than 50 cm thick. Schools of Baltic herring, one of the key species in the Baltic Sea, swim under this ice cover. Harvesting the herring with nets for domestic use was a common practice for centuries, with those living in Rymättylä having practiced winter-seining commercially from the 1880s onwards. Winter-seining requires strong knowledge of the environment, knowledge acquired since childhood. 'Sensing the ice' became the lifeblood of many living in the archipelago not only because they could use the ice to travel from island to island during the wintertime, but also because winter-seining constituted an important source of income during the rough freezing winter months from at least the 15th century until the end of the 20th century.

Ice dictated the rhythm of the winter. Not only did ice play a major role in subsistence, but it also influenced people's leisure-time activities and celebrations. In this way, the ice, the herring and the water all had significant agency in shaping the social and cultural surroundings for the fishing community, and the people's lives were very much entangled with these non-human elements and species. For example, every year the ice disappeared, the people then gathered and stored the seines and organised a big end of season feast (*peijaiset*). They also organised a similar type of feast before the winter-seining season began, when the fishers gathered to repair and assemble the seines after summer storage.

General knowledge of the characteristics of ice is not enough to cope with the changing conditions of winter, though. This point particularly came to light in narrations about non-local jiggers, as one participant demonstrated by quoting a local phrase: 'the ice is strong enough when three weeks have elapsed since the first (non-local) jiggers' (TKU/A/10/18/H3). Previous year-round locals also expressed concern about the occasional visits by summer residents to the village of Lypyrtti in winter. The locals narrated how they watched from the shore as summer residents attempted to walk on the ice and how it looked like 'they thought the ice is as thick as it is spread out'. This comes to show that knowing the ice includes a strong element of 'knowing with' – people need to be in close connection with the ice to be able to listen to and see with their own eyes how it has developed in order to know where it is safe to walk.

4.3 Making and breaking routes with ice

During wintertime, when the ice was thick enough to walk on, it connected people. Walking, riding or even driving from island to island was easy via ice roads. On the other hand, ice created a barrier to mobility for ships and boats. Various objects, means and vehicles were used as an aid to cross the ice and the open water fairways between the ice areas depending on the ice situation. Current fibreglass boats are capable of breaking through three-cent ice, but already ice that is one night or a few hours old may be too hard to break. Various customs and aids, such as a boat hook, anchor or ice spike, are still used to traverse the broken ice or ice floes (Kouri, 2017). Icebreakers and fairways created different situations and difficulties for many, and they found ways to adapt to these obstacles. For example, during World War II icebreakers began to open the icy Strömi sound around the village of Lypyrtti. One participant recalled piloting operations in the village during the 1950s and 1960s:

– – they complained about the heavy piloting [operations] in the winter period along the [open water] fairway. You would think it would be easy to go down the open fairway, but it is difficult after the icebreaker. (TKU/A/09/56/H1)

Another interviewee, writing about piloting in the same years, had the following to say in a survey conducted by the Finnish Maritime Museum:

There was sometimes a disagreement between those who lived on the 'wrong', other side, of the [open water] fairway. Their access to the store and bus became more difficult. When the ice became so thick that it closed off access to the fairway again,

the disagreements were forgotten and life returned to the former model. That was the case in the 50s. (Heino, 1996)

Another interviewee recalled how she, along with her grandparents, had crossed the open water fairway between the ice:

We went on a large sledge. And the fairway was always kind of open because the ships went along there. We also took awls with us, and if there was a watery place, then we had to poke [through the ice] and look. -- we had to go carefully and he [grandpa] tried to tell us where the ice was strong. -- And the fairway was bad because there was a stream [running through it]. But the fairway was open, and then we had a punt [a small wooden boat] on this side. The punt was pulled over the fairway, rowed, and secured to the ice with a boat hook to get to the other side. And then we proceeded on foot. (TKU/A/09/64)

Fig. 4. The communal wharf of Kekoniity, in Lypyrtti. The time before the ice is permanent is referred to as the ‘quarrel of the weathers’ (*säittenriita*), indicating a clash between different weather systems (photo: Jaana Kouri, 2008).

For winter-seiners, being aware of the fairways was crucial for safe seining. The fairways prevented a thick ice cover from forming and oftentimes cut off the route to their seining posts. One local woman reminisced about her teenage year back in 1950s as follows:

When I was attending confirmation school,¹ the ice was so weak that we did not catch any fish; the boats just kept breaking the ice, but there were no fish on this side of the fairway. In Nauvo [another island in the archipelago, on the other side of the fairway], there were a lot of fish, but we could not go there with horses over such thin ice. So we went to Hanka [a small harbour in Rymättylä] and ordered an icebreaker. We took all our horses and seines and people onboard and went to Nauvo, where the ice was very thick. (TYKL/aud/1268)

In the narrations, the narrator discusses human actors, even multiple generations of human actors, whereas the ice, water and stream represent non-human actors, described as various

¹ Confirmation class lasts approximately six months, during which time the candidates participate in parish activities and reflect on questions of faith and life, both alone and together with their peers. Finnish youth typically attend confirmation class at 15 years of age. Though voluntary, well over 80% of 15-year-old Finns take part in the confirmation class.

objects. Together, they comprise the actor networks at the moment of ice and water crossings. Still, to paraphrase Latour (2005), the process of textualising environmental heritage includes ambient intangible actants, but during the course of narration and when textualised by an ethnographer they become written and visible actors (Kouri, 2017).²

One also had to be careful when skiing on the ice. One participant recalled how she as a child had skied across Ströömi. Her father had said, 'you should travel on the skis quickly, and you must not stop' (TKU/A/09/194/H1). The interviewees recounted specific characteristics of the ice and water. For example, Ströömi, which has a strong current, flows through the village of Lypyrtti. In the wintertime, the current erodes the ice from below, making Ströömi dangerous to cross. Therefore, observations about local changes in the ice and currents are crucial. The villagers reminisced about the exact routes over the ice and the points of navigation along the coast that helped them find safe tracks along which to walk. When one of the interviewees was asked about the safest route across Ströömi, she said:

– – if there is a chance that you see how the water freezes gradually [day by day], then you can see where most likely there will be a strong place. Even if you now know that you should start from Punshuvila [a house] towards Eersund rock, it's not exactly on that direct route. It might be a little to one direction and a little to another direction, where the real strongest place is. (TKU/A/20)

Locals also helped summer residents find the correct routes across the ice. They passed ahead of them, marking a safe route with juniper branches. Certain locals were also revered as particularly good connoisseurs of ice. One woman was said to be able to walk on the ice 'where not even a cat would go' (TKU/A/09/75), and Rymättylä residents were said to have made a pact with the devil to be able to walk on such thin ice (Field journal, 2007; TYKL/aud/1267). The interviewees highlighted the importance of local ecological knowledge. It is necessary to know how ice 'behaves' precisely in certain local water areas due to the fact that such areas can change based on the presence of water streams and the shapes and patterns underneath the ice. It is an example of local ecological knowledge in practice. Even with extensive local knowledge, accidents still happened and locals went

² If the actor has not yet 'figured' in the narrative, it is an actant. Latour (2005) borrowed the concept of actant from literary science and incorporated it into his domain theory (ANT). It can refer to a certain structural component, body, individual(s) or a loose grouping of morphemes (pp. 39, 54, 71, 128).

through ice. It was a cold and sometimes fatal reminder that water in its liquid state still exists underneath the ice. In Lypyrhti, participants could name only a few people who had drowned by falling through the ice over long periods time (Kouri, 2017). People always warned each other about the dangers of falling into the water; it was a place ‘you must not get into’ (*ei pitänyt joutua*) (TKU/A/10/19; see also TKU/A/10/9/H2). Some interviewees reported that in the past the people in the archipelago did not know how to swim, in which case they should not even fall into the water. One of the villagers said that as a preschool child, the main thing was to understand that sea ice is always treacherous, especially in the Lypyrhti and Ströömi area (Kairavuo, 2006). Children were warned not to go on the ice, and they were punished, for example beaten, for falling on the ice when they came home from school on skis (TKU/A/10/12). While winter-seiners cannot recall any casualties as a result of their fishing trips, they could recount many near-death experiences. One of the participants recalled how he was yanked under ice when the ice broke under his tractor. He narrowly escaped death that time. Experiences of crossing the ice are also experiences of survival. Moving around the landscape forms spatial stories, narrative forms of comprehension (de Certeau, 1984). Navigating on the ice is the medium and outcome of one spatial practice, a mode of existence in the world (see Tilley, 1994, p. 29). The path can also be a symbol of movement through life. For example, walking in the landscape is comparable to the speaking act in language and is, at the same time, a medium and the result of a spatial practice; it is a way of existing in the world (Tilley, 1994, p. 28). For Christopher Tilley, central to de Certeau's idea is the use of the grammar of space, not as predicted, but as a step-by-step co-composing of the landscape and its actors (p. 86).

4.4 Growing with ice

Ice has a great significance in the lives of all beings within the landscape. It has an effect on the behaviour of fish and seals, for example. Interviewees observed that the occurrence of ice impacts the way fish move, and consequently, the way fishers harvest them. Large numbers of fish can be harvested both when the ice cover first forms and when it melts (TYKL/aud/1274). The interviews with fishers revealed that fish usually follow the ice because they ‘want to be under the ice cover’ (TYKL/aud/1277). The ice, then, has had a major impact on the local community but also on non-human species as well and the intra-actions between human and non-human species. For some children, using ice picks to catch fish was a normal activity done with friends and siblings, and one of the archipelago dwellers

noted that during the summer, when it is not a good season to fish, she actually misses the ice and ice fishing. For many, ice was an element of their childhood, and often the talk of childhood and ice unlocked many nostalgic memories. Children are used to playing on the ice, even when it is very thin, so the environmental heritage regarding ‘sensing of ice’ starts to form at a very young age.

A local woman from Rymättylä recalled how she and her brother would spend the whole day playing on the ice and using an ice pick to catch fish for the house cat.

Ever since I was little, I’ve liked it [fishing]. I remember that back then, my brother and I – parents weren’t really looking after their children like nowadays – we were on the thin ice trying to catch fish. The ice was all black and the water burst out onto the ice from the hole. No one knew we were there. And we were always fishing. Fish for the cats. (TYKL/aud/1268)

One summer resident who had lived as a child in the archipelago reminisced about a time when an older pilot gave him a piece of advice on how to fish for pikes in the wintertime:

– – you should try to fish in Kieskerrauma because it has a strong current. So the ice could possibly be thinner and the pike can see the bait better. And kick a lot of snow into your new hole in the ice so it doesn't immediately freeze; it helps a lot in your work. But the pike doesn't seem to move so much around in wintertime and during thick ice; it likes more to lie still – but when the spring sun starts to shine around Easter, that's when the pikes eagerly ascend to the surface. (Kairavuo, 2006, pp. 42–43)

In our material, the icegraphy of the archipelago provides a very detailed description of the activities and associated actors. Details are important, not only because of narrative richness, but because they convey the subtle, local-specific qualities of living with ice to the listener. The stories told to others, even before being ethnographically textualised, have served as environmental heritage, sharing experiences and environmental knowhow both with concurrent villagers and the next generations. Children have also grown up with ice themselves – interacting with it has taught them to adapt to changing situations.

5 Conclusion

For us, aquagraphy involves different narratives of waterbodies, while icegraphy is still even more focused on winter conditions. Winters are becoming milder, and the loss of ice has been evident and present in the lives of the archipelago dwellers for decades already. Icegraphy then, as it is presented in our environmental ethnography, speaks to the changing landscape and all the human and non-human elements within it, a narrative with mixed emotions of grief, nostalgia and some quite happy memories. It also brings to the forefront local, often tacit, ecological knowledge. This knowledge was born out of daily observations and multisensory experiences regarding ice, which consisted of sensing the ice, watching the ice move, strengthen and develop, and listening to its voice. It is knowing what and knowing how, but most importantly, it is knowing with. With the permanent loss of a regularly freezing Archipelago Sea, this knowledge might not be applicable for future generations, but as climate change increasingly affects local landscapes and ecological conditions, environmental heritage offers tools to learn from, proact and react to, and interact and intra-act with those changes and potentially advocate for adaptations that support sustainable development for the future.

Through intra-actions with the environment, the changing landscape reminds people of their past. They react by feeling sorrow, loss and longing and by actively bringing up nostalgic fragments or memories and observations about the icy landscape. This is the precondition for a local-specific process of creating environmental heritage, and environmental ethnography is a tool to textualise and contextualise such nostalgic memories in a form that could and should complement and add to scientific knowledge about environmental change. Environmental ethnography is not only the weaving together of networks of meaning-making between the researcher and subjects, but also between scientists from different disciplines. The prerequisite for discussions in different disciplines and the weaving together of networks of meaning-making is to have applicable common concepts. In this chapter, we have offered the concept of environmental ethnography for multidisciplinary fieldwork with local actors, both human and non-humans. Ethnography is an important addition to other 'graphies' because it provides narratives that emerge from local experiences, offering a wide range of perspectives and perceptions, and more importantly, viewpoints that are quite local-specific and have emerged from both the practicalities of everyday lives and the affective relationship towards a landscape consisting of all non-human actors as well. Moreover, we as researchers are also actors ourselves in these networks when the intangible heritage of the field becomes visible through textualisation. The obligation of researchers is to put the local understanding of actor

networks into textual form. Our material verifies that living with ice from childhood to adulthood, from season to season, from day to day, is crucial in understanding and adapting to changes in different water conditions. However, the environmental heritage process does not require the next generations or new inhabitants in the archipelago to absorb all the local ecological knowledge from the previous generations, but rather the important underlying principle of knowing nature. Environmental heritage is a process wherein nature is an inherent component of a local cultural practice and intangible heritage. It should also be noted that not all traditions should be transferred, only elements of tradition that are in a sustainable relationship with the environment and its actors (see Siivonen & Kouri, 2020). Looking at such a process of environmental heritage would be a good starting point for assessing, for example, social decision-making, livelihoods and education and the holistic way of life of people adapting to changing situations.

The environmental heritage process begins in the intra-actions between local individuals and non-human agents in the environment. It becomes a performed social heritage of the community in the present. As our examples demonstrate, the process of heritage creation is closely tied to the surrounding environment and changes in it. The efforts at conserving past experiences, knowledge and ways of meaning-making involve intentional reminiscing about the past. People want to intentionally commemorate and transmit meaningful knowledge to the future in times of change (Kouri, 2017; Siivonen & Kouri, 2020). Through nostalgic narration, our participants recalled meaningful events and practices by verbalising them, a form of oral history. In the narration, they informed us about sustainable ways to adapt to climate change. The nostalgic process also transmitted to the co-actors involved the signification process and tacit knowledge constructed by the villagers through empirical practice. This transmitting of information was not random but intentional. Interviewees wanted to convey the joint activities of different actors in adapting to changes. One of the actors is ice itself. The narrated experience-based everyday knowledge comprises the intangible heritage of a local community, with particular attention directed to the ice and lived environment, to a way of life and meaning-making community that includes both human and non-human actors. As ethnographers, we continue the environmental heritage process by textualising local environmental knowledge for future generations.

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