

Introduction

COASTAL WATERWAYS, CULTURAL HERITAGE AND ENVIRONMENTAL PLANNING

(Dedicated to Federica Cavallo 1973-2023)

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Figure 1 - La porta dell'acqua, Sorgenti del Sile (2022). © I. Duncan

“Here I remember Water”: Alders and a cormorant on the Sile river

A billboard on the road directs us to “La porta dell’acqua.” We pull up at a small car park where the *sorgenti* (spring) of the Sile River (in Veneto, Italy) rises amongst the thick muddy furrows of recently ploughed lowland fields. Walking into a small copse of trees the source is almost completely dry. Young alder trees, maybe only a few years old, stretch out of the damp earth from which water once emerged abundantly. The oxymoron of growth as a sign of ecological collapse.

We, (Francesco, Ifor and our colleague Eriberto Eulisse), discuss the fields surrounding the spring and the agricultural drainage of the water table that has occurred since the 1960s and

1970s. EU subsidies have made it advantageous to till former water meadows disrupting the groundwater that had fed the spring. The over-exploitation of the meadows is a form of what Julie Livingston (2019) refers to as a “self-devouring growth”: the drive for short-term economic productivity and its environmental impacts on the long term possibility of cultivation.



Figure 2 - Sorgenti del Sile (2022). © I. Duncan

It is January, the air is humid but the spring is silent where surging water could once be heard. We document the spectre of the source, fallen leaves carpeting the ground. Francesco says, “here I remember water”, and asks what is being done to preserve the traditional riverscape of the Sile. The new growth emerging from the dry source is a distraction from the water that should be flowing. Year after year, drought after drought, everybody can sadly experience the serious damages to their own watery sense of place. A sort of emotional thirst is often causes a collective anxiety that can degenerate in several states of depressive distress. Rivers’ trauma (physical bleakness) turns into affective trauma (psychological bleakness) when damage to the waterscapes signify change and erosion in people’s sense of belonging to and identification with their inborn hydrophilia.

The scene reminds us of a quotation from Heinrich Böll’s *Der Engel Schwieg* (“The Silent Angel”), where he reads the destruction of World War II Cologne through the new growth of plants amongst the rubble of aerial bombardment. He terms this measurement of time through growth as “a question of botany.” The growth of trees from the drying source is a very different question of botany, a new growth that marks the time since the river began to disappear. We wonder if, against received intuition, these trees are an index of ecological collapse.

The Sile rises west of Treviso before flowing towards the lagoon of Venice where its main course was redirected in 1683 along the Taglio de Sile to the Piave north-east of the lagoon. A reduced flow still enters the northern part of the lagoon forming the Canale Silone. The past and present of the short course of the Sile is tightly connected to the management and mismanagement of the coastal waterways of Veneto. The rivers and wetlands of Veneto have

long been canalised and redirected by interventions resulting in the intensive farming of the region, now a suburban sprawl that exerts its own demands on the historic waterways.

Lagoons and coastal waterways are unique environments to read the accumulated sediments, pollutants and other conditions rivers encounter along the entire stretch of their watersheds. This special issue draws our attention from the sources and main course of river systems instead towards the meeting place of inland logistical routes and the sea, which often form the locations of global population centres. The idea of waterway is here considered in a holistic view, with a special attention to the recent transformation of social attitudes entailing the rise of more attentive perceptions of waterscapes. Because of the undeniable effects of climate crisis, worldwide coastal hydrography is the crucial scenery where manifold forces interact, involving the rapid evolution of visible morphologies and intangible heritage affecting transitional waters, deltas, rivers and canals. In this light the relevance of waterways moves from a strict economic dimension to increasingly shared cultural and recreational contexts, thus improving proper strategies in environmental planning interventions.

The current issue follows on from debates addressed in a previous *Shima* theme issue 'Heart of Wetness: Living, narrating, and representing ancient memories and new water rhythms in the Venetian Lagoon' (v15 n1) edited by Francesco Vallerani, Francesco Visentin and our late colleague Federica Letizia Cavallo. The central subjects of tourism and water management are expanded in the current edition to incorporate a broader geographic, social, and cultural context of coastal waterways within a global frame. While this issue retains a focus on the Venetian lagoon and the waterways of the surrounding Veneto it extends the concerns found there into a global scope with many of the specific but also common issues impacting urban river systems of Mumbai (Nayak, Keluskar & Pawar), Tokyo (Hasegawa), New Orleans (Mallum, Hayward & Fleury), and Kochi (Sudhindranath & Lourdusamy), as well as the non-urban waterways of the Albufera de València (Spadaro & Vallerani). In such cases it is easy to see why rivers are running dry under the urban conditions of the Anthropocene.

Coastal waterways and lowland rivers face manifold threats of over-development, over-tourism, degrading infrastructures, pollution, resource exploitation, and spatial disconnection in urban settings. The role of hydraulic infrastructure plays a complex and at times contradictory role in the cases presented. Some contributions consider the history and preservation of historic hydraulic engineering, which have hydro-terraformed waterways. Where these examples address the legacies of the canalisation of vast logistical networks and their degrading environmental health others address the loss of waterways in the advance of urban architecture.

Junichi Hasegawa's contribution traces the infilling of Tokyo's canal system as a solution for the vast quantities of rubble that resulted from aerial bombardment in the years after World War II. The infilling was a collateral of the end of conflict, and Hasegawa argues that the loss of waterways with such disposal of rubble in the transition from watery space to dry land also involved a loss of cultural heritage with a negative impact on the quality of life for residents. This post-war, and post-earthquake, phenomenon presents how unexpected factors have led to damaging effects. Returning to the indirect causality of crop spraying, river pollution and the death of bird life in Rachel Carson's ever relevant *Silent Spring* (1962), the causes of the loss of waterways are often unacknowledged as the urban and built environment overlays what was once water. Effected by a different set of causes these long-disappeared waterways evoke the local dialect toponym *rio terà* in Venice (precisely indicating the filled canals), where successive French and Austrian occupations sought to modernise the city by filling in its characteristic canals to make walkways.

Here contemporary concerns are framed within the physical history and cultural heritage of waterways, and authors converge on the propositional belief that such histories and heritages are instrumental in addressing the presents and futures threatened. Where examples exist of consolidated plans for the management of historic hydraulic canal water systems, Lisa Zecchin alludes to the fragmented management of historic waterways in the context of Italy and abroad, often left by underfunded local, regional and national governments to the uncertainty of a tourist economy to preserve the degrading semi-natural waterscapes. The recovery of historical *canalscapes*, within the general trend to manage the disrupting effects of urban sprawl, expresses an increasingly need to preserve places for psycho-physical regeneration and recreational activities. From here the step is short to delve into the concept of *hydrophilia*, entailing the inborn and unconscious attraction in human beings since primordial times for various kinds of waterscape. By proposing a more integrated approach of a “blue corridor” and the focus of a “diffuse” ecomuseum to set a sustainable focus whereby the Battaglia canal can be linked up to other local waterways and the existing draw of the region’s wealth of historic villas.

The global scope of the waterways considered is likewise mirrored by the disciplinary breadth of the contributions, with geographers, landscape architects and anthropologists, providing much needed reflections on the diverse range of approaches necessitated by the conditions faced by coastal waterways. These include the sustained practice of walking coastal waterways as a “multi-sensorial experience” of the environment and the socio-cultural experience of a bayou within New Orleans (Bukar Mallum, Hayward & Fleury), as well as, the illustrative method deployed by Pingyao Sun, Inge Bobbink and Amina Chouairi, combining multiple mapping strategies from photographs, satellite imagery and architectural drawings to develop a spatial, social and cultural narrative of the Canal du midi (Bobbink et al. 2019; 2022). Such a method aims to alter the approach of landscape architectural approaches to the legacies of vast ecosystems and infrastructures to influence how they are planned into the future to be more sustainable with their surrounding economic, cultural and social conditions. As to water mobilities, Petra Codato’s “hydroperspectivism” enabled by living and thinking water from the position of a boat, sheds light on the experiential enrichment coming from this change in perspective. She presents a kind of “meditative” kayaking, maybe the best way to feel completely embodied when navigating at the water’s edge. Even if from the kayak’s perspective the lagoon canals labyrinth structure is not graspable, standing at water level makes you feel to be an integral part of this vibrant habitat. Paddling on board kayaks or canoes is actually one of the best opportunity to become knowledgeable of untrodden urban waterscapes (Edgeworth, Benjamin, 2017; Hayward, 2021).

Elsewhere, Nayak, Keluskar and Pawar investigate the need to recalibrate the perception of urban rivers in India at the “convergence of socially vulnerable communities and ecologically delicate zones”. In their case the seasonal Dahisar river in Mumbai, and others across the city, are referred to as *nullah*, natural waterways, with historic cultural significance, incorporated by the city into its low-capacity sewage system especially for stormwater drainage that leads to river pollution. The nullah act as the overflow destination for an expanding population and informal urban development giving them a negative connotation in popular perception. Citing urban disconnection from rivers, they argue for a holistic approach to encourage reconnection with traditional riverscapes and foster local stewardship with the aim of ensuring a sustainable future including the economic benefits of a healthy waterbody. With this optimistic vision the authors, nevertheless, acknowledge the challenges of informal growth and the need for a defined policy framework to revitalize the relationship between communities and rivers that have for so long been reduced to

polluted open sewer systems. The authors prioritise emerging nature-based solutions and practices to improve both the visual and olfactory experience of the nullah. One such proposal would be to remove the river walls to thus improve permeability and flood resilience capacity. Their reading fits within a critique of the “terracentric” perspective of western and European derived hydrogeographic knowledge and practice that Rita Vianello directly addresses as flattening water from a spatial perspective as a containable and abstract medium. The literature on the extent of the geophysical and epistemological impact of these processes is extensive (Da Cunha, 2018; Shiva, 1993; Gregory, 2001; Linton, 2010), and the amphibious meeting points of the coastal condition throws into starker relief the transition or spectrum of water and land, fresh and salt, that brings the nature /culture divide into further question.¹

A concern remains and perhaps requires deeper critique regarding “nature-based solutions” and whether they can ever be fully sufficient in heavily urbanised and densely populated conditions on their own. Can a revitalised flood plain cope with the capacity of storm waters in a densely populated context? Can nature’s inherent harmoniousness be assumed even within such a cityscape? Nevertheless, as a clear acknowledgement of these challenges the contributors to this special issue call for a range of approaches that fold together both socio-cultural as well as nature-based physical interventions .

The imposed divisions between land and water and between adjacent territorial jurisdictions are particularly evident in Sudhindranath and Lourdusamy’s account of the role of British colonialism in the contestation of princely territories in 19th and early 20th century Travancore and Cochin, modern day Kochi. The uncertainty of hydrogeography in the case of disputed islands is an example of the disruption caused by fluid ecologies to the exertion of hydrological power and territorial demarcation where the dynamism of river systems and alluvial river islands are concerned. The role of rivers and the shifting nature of coastal and deltaic ecologies troubles the management of the legal possession of title as sediment islands are sculpted by sprawling river flows moving them from one side of a line of territorial demarcation to another. Coastal waterways are the locations where the amphibious relations of land and water are most evident, and it is exactly in these locations that the political stakes of conceptions such as Sudhindranath and Lourdusamy’s notion of “fluid ecologies” have ramifications for the contemporary and future management and policing of constructed territorial and geomorphological boundaries.²

The question of the status of nature in the context of both urban and non-urban waterways is common in this collection of multidisciplinary articles. Rita Vianello cites the concept of the “socio-natural hybrid system” proposed by Cavallo, Vallerani and Visentin (2021) in her description of the “human-non-human-nature coexistence” that characterises the Venetian and Caorle lagoons. She addresses the complex relationship between the threatened heritage of the casoni stilt fishing huts that characterise the traditional fishing culture of these lagoons and the abstracting but necessary role of tourism in their conservation. As Zecchin warns of the potential threat of tourism as a “landscape devourer” to the Battaglia canal, the question persists in Vianello’s piece regarding the preservation of local culture and declining

¹ Similar questions concerning a brackish way of thinking and practising through the imbrications and circulations of different ecologies and economies in the coastal ecosystems of Amsterdam and the IJ river were central to the FieldARTS residency hosted in Amsterdam in 2022. (See <http://www.jeffdiamanti.com/fieldarts-residency>).

² For the violent implications of such fluid ecologies in the context of geopolitical borders and mobility see Duncan & Levidis, (forthcoming 2023).

practices only for the purpose of commercialisation and commodification. What is the cost for traditional landscape features and heritage to be preserved when they no longer hold their previous form, and are only accessible at a price?

An encouraging answer to the question can be found in the exemplary re-imagination process that has occurred in the Albufera de Valencia, as clearly outlined in Chiara Spadaro and Francesco Vallerani's contribution. Despite the impact of the expanding coastal conurbation of València on the surrounding alluvial system, including the marshlands, lagoons, riparian forests and dunes detaching the wetland from the sea, recent strategies have been able to maintain the watery heritage of the Albufera. Such strategies were fuelled by an increasing common awareness about the qualitative worsening of such suburban wetlands, thus fostering the establishment of adequate recovery policies. The citizen demand to protect and recover this natural space culminated in the declaration of this wetland as a natural park in 1986.

Faisal Bukar Mallum, Philip Hayward and Christian Fleury draw on the close links between heritagisation and gentrification in the context of Bayou St John and the Lafitte Greenway in New Orleans. This relationship is a central concern for the role of heritage in river way management, and the economic impact that this has on communities and the social engineering the tourism/heritage complex produces? This is all the more acute in the post-Katrina context of New Orleans where the desire to preserve the specific cultural heritage of the city and the resultant impacts of gentrification are un-sustainable when the very communities whose heritage is evoked are displaced by flooding, insurance failures and extortionate price rises. As is common amongst the collected texts the solutions are as complex as the threats and causes of these threats themselves.

Such complexities are evident in Aaron Pinnix's historic study of the economic vs environmental impacts of logistics in the United States through the Intra-Coastal Waterway, asking how does such a waterway narrate the national and local? Much like Anna Tsing's conception of "frictions" (2004), Pinnix brings the national and local narratives of waterways into contact to understand how these scalar interrelations can reveal different ecological and social concerns. Highlighting the exclusion of these narratives from dominant history of the use of slave labour to build canals and the overlaps of canal infrastructure development in the pursuit of war against Indigenous groups, Pinnix makes the prevailing point that the ancestry of American infrastructure, and a history of American waterways, is incomplete without knowing "how enslaved labourers built much of the nation's historical infrastructure". Similar to Pinnix, the contribution from Bukar Mallum, Hayward and Fleury draws on the stark and problematic encounter between ecologies where escaped slaves sought refuge and the forces of gentrification along waterways now sought for their aesthetic characteristics. This exacerbates the disparity of experience of environments and populations in gentrified watery areas against the conditions of resource extraction and pollution in environments where gentrification processes do not take place but where other forces of extractive capital are in ascendance. These water courses and ecosystems are often in close proximity to one another.

We progress downstream to where the Sile has grown from its receding source into a stable flow, fed by irrigation canals and a porous geology receiving water from the Piave that runs parallel uphill. For this reason the Sile is often called the child of the Piave. The fact that there is so much water flowing only a few miles from the river's source proves the success of

irrigation down the steep gradients from the much larger river. It sheds light on the critique of there being no single source to a river – instead many rivers emerge from springs and from dispersed fields of tributaries, rain rivulets and the seeping of water through earth. The Sile is an example of a river that due to drought and increasingly acute seasonal variations no longer follows a clear linear path from its identified source to the coast and the sea (Da Cunha, 2018).

At Quinto di Treviso, however, the Sile is more plentiful. Here the river flows into reservoirs that once supported a thriving network of water mills; now it feeds the curving channels of fish farms and other aquaculture installations. In one farm where trout are farmed, we see a cormorant caught in the low strung nets of the farm. It flies inside, engorging itself on fish but it cannot escape as it gets caught in the nets. We hope one of the farmers will come and release it from its trap of overfeeding. But what brings the cormorant and the alder saplings together? Will the cormorant be released by the farmer from its prison of overabundance? Will a good rain year unroot the young alders as the spring surges once more? Or are the saplings the flickers of life for a terminal patient and will the cormorant eat itself to death?

The cormorant trapped in the fish farm, like the young alders, appear like entries into Nicholas Nova and Disnovation.org's *A Bestiary of the Anthropocene* or, indeed, as parables for waterways in distress. Pinnix raises the important issue of the spectral, or of ghosting of the remnants of previous river systems. The urge to save the cultural heritage of waterways, or to heritagise as a tool to save them as functioning ecosystems sits with this ghosting (although the canalised waterway as spectre of a previous logistical economy holds a different texture to the melancholy of the animal trapped in the industrial production facility with its desired prey at an almost unlimited supply, or the trees that grow from a disappearing spring). These are the traces of over-exploitation and the stress of what is in the process of no longer being. A modern parable: the fatal trap of abundance in a disappearing environment.

In divergent yet complementary ways the contributing texts to this special issue trace the questions of botany, or indeed questions of hydraulics or the hydrographic, as indexes of threatened coastal waterways. Each strives to offer solutions, or contributions to finding solutions, whether through radical new conceptions of the material structure of environments, new disciplinary methodologies and narratives, or the proposal of more holistic approaches to reimagine community relationships with water bodies through such proposals as ecomuseums. Each in their own way refuses questions of futility and instead seeks ways of releasing its own cormorant or perceives the urgency of the index of new growth in the context of drought.

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