

Connected by Sea, Isolated by Water: Water and Water Supply Infrastructure on Two Croatian Islands

Ana Perinić Lewis

Institute for Migration Research, Croatia

ana.perinic.lewis@imin.hr

ORCID: <https://orcid.org/0000-0002-2425-1061>

This article presents ethnographic research on the lack of water infrastructure on two Croatian islands – Žirje and Hvar. Both islands are examples of various forms of isolation that have persisted throughout history and have even been reinforced by absent or neglected water infrastructure. The author critically examines the social, cultural, and economic role of water as a factor of survival or disappearance, along with its political and demographic consequences.

• **Keywords:** water infrastructure, water supply, isolation, Žirje, Hvar

V članku avtorica predstavlja etnografsko raziskavo o pomanjkljivi vodni infrastrukturi na dveh hrvaških otokih – Žirje in Hvar, pri katerih gre za različni obliki izolacije, ki se je ohranila skozi zgodovino in jo je celo okrepila odsotna ali zanemarjena vodna infrastruktura. Avtorica kritično preučuje družbeno, kulturno in ekonomsko vlogo vode kot dejavnika preživetja ali izginjanja ter njene politične in demografske posledice.

• **Ključne besede:** vodna infrastruktura, oskrba z vodo, izolacija, Žirje, Hvar

Introduction

The sea and water are two dynamic elements that define islands and islandness. I make a terminological distinction between the two because it is the first lesson learned on an island. Islanders would never refer to the sea as water. The difference is not purely linguistic; it also refers to the meaning. To an islander, the sea as a substance is not seawater. To an islander, the sea is just the sea (Božanić, 2023: 283). It is important in creating the island's identity and its economy. The sea embodies the duality of isolation and connectedness. On the one hand, it is a medium that separates islands physically, and on the other a communication medium that under the circumstances of developed navigation connects islands among themselves or with the mainland (Faričić, Čuka, 2020). However, one cannot drink the sea, nor water plants with it, nor give it to livestock to drink. Water on islands has been collected, stored, and used economically because it is a “valuable liquid without which human settlements cannot exist, nor any serious survival” (Pavličić, 2010). The abundance of the sea and the scarcity of fresh water are defining characteristics of islands.

When mentioning the words *island* and *water*, my first association is the story “Voda” (Water) by the writer and islander Vladimir Nazor. The plot begins in the summer, during a great drought in the village of Velo Selo on Brač, where three months without rain have caused a shortage of drinking water. The drought affected nature and human



behavior due to the constant threat of thirst and hunger. The village leaders negotiate with the authorities to be provided with water, transported by a water tanker from Pula. The author is a master at describing the collective feeling of thirst and desire for water in a scene in which early in the morning all the villagers are standing by the sea with various pots and waiting for the savior ship. However, the drought crisis does not create solidarity on the island, but instead friction, greed, and disunity, with all the illnesses of a small island community coming to the surface. Nazor wrote the story in 1923. Today in the Adriatic there are still twenty inhabited islands without water that are supplied by water carriers, just like in Nazor's time.

To carry out research on isolation and insularization, I selected islands that are archetypal spaces and landscapes for acquiring the imagery of isolation and remoteness. In this article, I view the various forms of isolation not as states, but rather as processes, historical and contemporary, in which spaces and communities lose their vital constitutive determinants (people, infrastructure, services, social networks, and the future) as preconditions for successful functioning (Dzenovska, 2020). Isolation and insularity are analyzed as a multidimensional and changing phenomenon, and as a cultural understanding of change in relation to the notions of belonging (Drazin, 2018). Furthermore, some communities and individuals view isolation as a loss, neglect, and marginalization, whereas others see in it an opportunity and gain (Dzenovska et al., 2023). The research explores the experience of isolation in island communities, examining their perceptions of both objective and subjective determinants of isolation. It explores how these communities navigate the risks and vulnerabilities tied to their dependence on external factors caused by infrastructure limitations. In addition, the analysis highlights the resilience and independence displayed by islanders through their strategies for coping with the challenges of isolation and remoteness. The research on water on islands contributes to a broader understanding of the way fragile isolate communities adapt their lives to limited resources, significant seasonal pressure, and specific ecological challenges. Securing drinking water for all residents and tourists is becoming increasingly challenging due to the islands' geographical remoteness, infrastructure problems, and limited resources. Living without infrastructure or with deteriorated island infrastructure affects the everyday life of islanders and often limits their economic development. This article presents ethnographic research on absent and neglected water infrastructure on two Croatian islands, Žirje and Hvar, to illuminate the changing experience of development in isolated communities.

Both islands possess a rich maritime history and a significant geopolitical and geostrategic position within Adriatic maritime routes (Bratanić, 2020). Historically, maritime commerce, maritime transport, fishing, and boatbuilding connected these islands with the Mediterranean and the wider world. Today, however, maritime links are more focused on regional centers on the mainland, and the seaside and nautical tourism have become the backbone of islands' economy. Both selected islands are

examples of multiple insularity and many layers of longstanding spatial and historical isolations. Infrastructural limits further aggravate everyday life and work due to a need for greater individual investments and efforts, while at the same time affecting further demographic emptying, particularly of rural settlements in the islands' countryside.

Žirje was selected as an example of multiple insularity and a small island that served as a military base for fifty years under coastal self-government (from the city of Šibenik). It is categorized as the least developed island or a depopulated island with extremely low economic dynamics, without water infrastructure, and to which water is provided by water-carrier ships. The field research on Žirje was conducted in 2023 by Lana Peternel and me, and in 2024 it was carried out by Filip Škiljan.

Hvar is a large, inhabited, and well-developed island, and an example of a divided island whose eastern part functions as an island within the island (Perinić Lewis, 2017). This is the case due to further strengthening of insularization and isolation as a consequence of a lack of water infrastructure. Field research on Hvar has been carried out for many years (since 2006), and infrastructure has emerged as a relevant research topic in analyses of various forms of isolation based on examples of islands and island communities. In addition to the islanders, I also interviewed employees of the Hvar water supply company Hvarski Vodovod and the firemen that deliver water with water trucks. Based on ethnographic data, this analysis explores the role of the state, as perceived by the islanders, in the construction, reconstruction, and maintenance of water supply infrastructure on the islands. It also examines the coping strategies employed by the islanders, who have lived without stable sources of drinking water. Ethnographic research on water on islands, where water has always been a rare and precious resource, critically examines the social, cultural, and economic role of water as a factor of survival or disappearance, along with all the political and demographic consequences. The old saying “Put your finger in the sea and you are connected to the whole world” has held true for centuries of living by and from the sea on Croatian islands. However, if you want to dip your finger into fresh drinking water on some Croatian islands, you will experience a different side of island life—one tied to living with limited resources, remoteness, isolation, and frequent neglect from the mainland and the state.

Islands, isolation, infrastructure

Islands, both geographically and metaphorically, often symbolize isolation due to their separation from the mainland or larger social contexts. Islands hold a special and privileged position as isolated places, being surrounded by water (Ronström, 2021: 280). Isolation “is the product of specific materializations of complex spatial and temporal interrelations in a particular (island) locale, rendered possible by the engirdling and entangling sea” (Baldacchino, Starc, 2021: 6). The physical barrier of the sea configures



a specific experience of territory. Insularity is a geographic circumstance that initially determined development on islands and a “bounded sensibility” that shapes the sense of uniqueness and distinction (Hay, 2013: 217). The key feature of an island is the island’s edge, coastline, or rim as the essential factor that constitutes islandness. Islanders tend to be more in contact with and aware of boundaries than most other people (Hay, 2006: 21). Islandness is connected to a strong identification with the sense of place. It is “a complex concept that describes the overall island existence in conditions of long-term insularity” (Starc, 2020: 5), “a metaphysical sensation that derives from the heightened experience that accompanies physical isolation” (Conkling, 2007: 200). Islandness includes emotions resulting from insulation and isolation (Vannini, 2011: 250). On near islands that are close to the mainland of their country, islandness should also be understood as “a political stance toward the mainland state” and “a complex construction that incorporates the feeling of inhabiting an island along with experiences of exclusion, marginalization, diminished capacity, and the struggle to influence state decisions” (Bustos, Roman, 2019: 100). The sea connects the island through transportation routes and migratory pathways for all living things, both human and nonhuman (Foley et al., 2023). Philip Hayward (2012) proposes the concept of the ‘aquapelago’ to capture the holistic nature of the connections between land and sea in island realms. For island communities, reliable and permanent traffic connections play a crucial role in shaping overall life and are essential for overcoming geographical isolation and reducing socioeconomic disparities.

On the other hand, drinking water on islands is a precious resource, and lack of a water supply network exacerbates the feeling of remoteness and isolation from the mainland. Water on islands has always been valuable, and water supply has been a challenge for centuries. In areas with limited water sources such as islands, the water supply relied heavily on groundwater and rainwater harvesting, with extensive use of wells and cisterns (Voudouris et al., 2019). Infrastructure often suggests ideals of inclusivity, integration, and a vision of a comprehensive whole. Building infrastructure is regarded as an effective way to promote the “public good” because it is both inclusive and essential for the functioning of society (Di Nunzio, 2018). Ethnographies of infrastructure and citizenship highlight how local forms of connection, disconnection, and belonging shape people’s experiences. Infrastructure is not just about physical networks but also involves social and emotional ties that influence how individuals relate to each other and to the state (Anand, 2011; Von Snitzler, 2013; Chelcea, Pulay, 2015). If the state is theorized through roads, the islands are inhabited because of and due to accessible drinking water (Carse, Kneas, 2019). Obtaining water relies on a vast and complex network of physical infrastructure, coupled with a bureaucratic system that extends from local entities to national authorities and international governing bodies. The regulation and management of water resources also involve legal systems, oversight agencies, and judicial bodies to regulate water use and address violations or conflicts (Orlove, Caton, 2010: 402). Analyzing hydrosocial relationships thus implies paying

attention to the myriad relationships that link water to its human users (Ballesterro, 2019; Greek, 2021). Water infrastructure mediates the interactions between people and social institutions, as well as between people and the biophysical environment, constantly producing and transforming sociotechnical relations (Wells et al., 2021: 5–6). It has become technologies that countries deploy to pursue progress and modernity, while also differentiating and sometimes disenfranchising populations (Appel et al., 2018). It has the potential to connect islanders to both running water and the state. However, because the infrastructure develops through delays, disruptions, and stagnations, this connection is never fully realized—neither the physical-material connection nor the connection to a supportive state (Greek, 2021: 100). Infrastructure is “characterized by multiple temporalities, open futures, and the constant presence of decay and ruination” (Gupta, 2018: 62). According to Ashley Carse and David Kneas (2019), unbuilt and unfinished infrastructures can become the axes of social worlds and sites where temporalities are knotted and reworked in unpredictable ways. Temporal loops (prolonged presence, suspended presence, and nostalgic future) are evident in the lives of people that lived with unbuilt, unfinished, or damaged water infrastructure because infrastructural limitations symbolize either promises of a better future or remnants of unrealized visions (Löfgren, 2004; Gupta et al., 2018).

The Croatian islands are fragmented, located on the periphery of the Croatian coastal region, and often positioned at the margins of modern social and economic networks (Faričić, Čuka, 2020: 57). They have always been under the dominion of the mainland, so that decisions on the islands’ development have always been made on the mainland (Kordej-De Villa, Starc, 2020). Article 52 of the Croatian constitution states that the islands are entitled to special protection.¹ The role of the state is critical for islands to “remain places of life, not isolation” (Weiss, 2010).

Most ferry lines connect the Croatian islands to the nearest coastal urban centers, whereas there are few direct links between the islands themselves. In research on the quality of life conducted on small Croatian islands (in the Šibenik and Zadar archipelagos), one of the main disadvantages highlighted by the respondents was poor transport connections (Babić et al., 2004; Podgorelec et al., 2015; Mikulandra, Rajhvajn Bulat, 2022). Larger islands closer to the coast tend to effectively address their traffic issues, benefiting from better access and more frequent transportation services. In contrast, small islands often struggle to secure high-quality traffic connections, leading to challenges of isolation that significantly hinder access to services. This limited connectivity not only affects the daily lives of island residents but also diminishes the potential for tourism and economic development (Mišura et al., 2020).

¹ “The sea, seashore, islands, waters, air space, mineral resources, and other natural resources, as well as land, forests, flora and fauna, other components of the natural environment, real estate, and items of particular cultural, historical, economic, or ecological significance that are specified by law to be of interest to the Republic of Croatia shall enjoy its special protection” (Article 52, Constitution of the Republic of Croatia; Internet 1).

Water on Croatian islands: Rare and precious

Water on islands has always been valuable, and supplying water has been a challenge for centuries. From prehistory, rain in pools and water from rare natural springs and wells were the only sources of drinking water on islands. Rare island areas that had springs and watercourses were places of early settlements or colonization, such as the Greek colony of Pharos at what is now Stari Grad on Hvar (Taburšković, Mićunović, 2022). Another example is Jelsa on Hvar, which has three springs of drinking water (Libor, Garmica, and Vir), which were the main reason for the settlement of Jelsa and neighboring places. Even today these springs are part of the island water supply system. In addition, three streams still flow through Jelsa, of which the best known is Slatina Creek (Internet 2). According to local legends, it has its source beneath the altar of the main church in Jelsa and makes its way through the town's main square, from which it runs into the sea. On Žirje, the fortresses of Gradina and Gustjerna (Gušterna/Gušterne) from late antiquity on the southwestern part of the island that served as control points for the intersection of Adriatic naval routes are located near water (Podrug et al., 2016). There is an underground lake in Gradina Cave, 35 meters deep within the walls of a fort from late antiquity, from which drinking water was drawn until the mid-twentieth century (Jalžić, 1994: 46). Within the fort at Gustjerna, there are the remains of a cistern that used to collect rainwater, which is also how the site got its name (*gustjerna* means 'cistern'; Iveković, 1927; Gunjača, 1986; Podrug et al., 2016). The third site of water accumulation on the southern side of the island is in a natural cave eleven meters deep on Draževica Hill (Kale, 2009: 251). The islanders are well acquainted all the rare natural springs, wells, still waters, pools, pits, and caves where water could be found on their islands. This is visible in island toponyms on the two islands explored in this article. Among them, there are always hydronyms for land on islands that refer to the water on Hvar (Hraste, 1956; Vujnović, 2022) and Žirje (Marasović-Alujević, Grgurić, 2011; Skračić, Šprljan, 2018). On Žirje, the area called *Lokva* (or *Loka*) in the fertile Žirje Plain played a crucial role in sustaining life and the local economy. Until the early twentieth century, it served as a source of drinking water for the islanders, as well as for watering livestock, washing clothes, extinguishing fires, and irrigating the surrounding fields (Faričić, Magaš, 2004).

Collecting surface water, harvesting rainwater, and using this water efficiently is one of the essential skills for island life. On Croatian islands, most of the time the water supply has been based on collecting and storing rainwater in small private or large public cisterns. Rainwater was collected from the roofs of houses in private cisterns, and communal village wells collected rainwater from huge stones and slabs especially laid for that purpose. On many islands, especially small and remote ones, these systems are still in use (Faričić, Čuka, 2020: 70). This water was often used for watering livestock, irrigation, and agricultural production. The island cooperatives needed greater

amounts of water for extracting essential oil from rosemary and lavender through a steam distillation process (Petrić, Štambuk, 2007).

In the past, on Žirje and many other Croatian islands, tasks such as bringing water from natural pools, wells, or cisterns to the house and washing laundry were traditionally women's work. Monuments depicting women carrying buckets of water (e.g., in the village of Brusje on Hvar in front of communal village cistern) or a laundress with buckets of washed laundry on her head (in the town of Krk on the island of Krk, and in Preko on Ugljan) still testify to this today. Moreover, half of my interviewees, especially older persons, living on islands without modern water infrastructure still collect rainwater from roofs into separate tanks and mostly use it for watering gardens.

Water has many other monuments on the island, which testify to its significance. The first examples of water transport on Croatian islands can be traced to the Roman period. Thus, in the Brijuni archipelago and on Pag there are preserved remnants of Roman aqueducts (Vitasović, 2006; Ilakovac, 2008). From later periods there are remnants of water systems and large wells that were built in the island settlements under the rule of Venice and the Austro-Hungarian Monarchy. Public taps from the early twentieth century are still in use, such as the one near the main city gate in the town of Hvar or the fountain on the main square in Jelsa, erected in 1934 to mark the construction of the first public water supply system that provided drinking water to Jelsa from nearby Vir Spring. The fight for water had a dark side as well. Valuable pools and swamps became sources of malaria in the nineteenth and early twentieth century. In Jelsa on Hvar, the Soline Swamp was drained due to health issues in the nineteenth century. Today, a park has been built in its place. On Žirje, a malaria epidemic broke out in 1902 (Sirovica, 1994). The water supply used to cause deaths, as well. One such tragedy is evidenced on the commemorative plaque at the entrance to anchialine Živa Voda Cave in Kozja Bay on the southern coast of Hvar. Here, two men lost their lives while pumping water from a spring in the cave on August 9th, 1972.²

The map on the website of Hrvatske Vode, a legal entity in charge of water management in Croatia, displays water supply zones (Internet 3). Croatia is mostly covered by the public water supply system, and pink marks are areas of “individual water supply,” or areas that are not connected to a pipeline. Such zones are mostly mountain regions and islands.

A large majority of Croatian islands do not have their own natural sources of drinking water. Due to the porous, permeable rock, there are almost no permanent surface watercourses. The most favorable water supply conditions are found on Cres and Lošinj, which use water from Lake Vrana (a freshwater lake on Cres, a unique hydrogeological karst phenomenon), and, along with Vis, these are the only islands

² The plaque reads: “In this cave the young lives of Miro Jerković (born March 17th, 1941) and Duško Rudan (born December 26th, 1938) were tragically lost. This memorial plaque was erected by Jozo Rudan in honor of his brother and cousin.”



that fully meet their water needs from their own resources (Vlahović, Pekaš, 2002). Some large islands (Krk, Rab, Pag, Dugi Otok, and Korčula) have somewhat better water resources that can supply most of the island settlements. Where available, rare local wells and springs provide a portion of the water supply, although these sources are often insufficient to meet total demand. Only nine islands have their own water resources eligible for use in water supply (Vlahović, Pekaš, 2002). The Croatian islands are supplied with water in three different ways. Some larger islands have their own water sources and tailored infrastructure for transporting water around the island. Islands closer to the mainland, and larger and more populated islands (Krk, Cres, and Lošinj) receive water from the mainland water supply via underwater pipelines. These pipelines transport water from mainland reservoirs and rivers to the islands. The outermost islands and those not connected to the mainland by pipelines are supplied with drinking water by water carriers. In rare cases, desalination plants convert seawater into potable water as part of the water supply infrastructure or strategy for the remote islands or for islands with high water demand during summer season (Susak, Lastovo, Krapanj, Mljet, Vis, Biševo, Palagruža, Šolta, Mljet, and Korčula). There are ecological issues related to desalination, especially on islands, because it is an energy-intensive process that requires substantial amounts of electricity (Runko Luttenberger, 2017). Some of the largest Croatian islands, such as Cres, Pag, Hvar, Korčula, and Mljet, are among the 11% of the islands where the water supply system is partially regulated (Dadić et al., 2008). However, the small islands and those far from the mainland have not yet been connected, and their water supply consists of private reservoirs or tanks. They collect rainwater, and drinking water is brought to the islands by a water carrier and/or water trucks (Faričić, Čuka, 2020: 71). About 4,860 households on twenty islands are not connected to the public water supply network (Internet 4). In addition, water supply is a significant issue in the summer, particularly during the tourist season, when demand increases because the number of consumers multiplies several times.

Delivery of water according to the law and regulations

The delivery of water to island settlements that are not connected to the public water supply system is regulated by the *Island Act*.³ Over twenty years, it has changed twice, and along with these changes bylaws for water supply regulation also changed three times.

³ The *Island Act* (NN 116/18, 73/20, 70/21) includes a provision known as Island Rights (part 7, sections 1, 2, and 3, Articles 29 to 34), which guarantees subsidized prices for maritime and road transportation of water, as well as subsidized water costs if the island is supplied by water conveyance. Islanders hold an island identity card (*otočna iskaznica*), a special card provided to residents of the islands to facilitate access to specific benefits and discounts. This card acknowledges the challenges and higher costs associated with island living. It is issued to individuals that have permanent residence on one of Croatia's islands (*Zakon o otocima*, 2018; Internet 5).

Each change always included a decrease in the quantity of subsidized water per household. Currently, the delivery of water to islands is regulated by Article 33 of the *Islands Act*, under which islanders are granted water supply for household consumption amounting to up to 85 m³ per year at a price that is equal to the price of water paid by the same category of users in the place from which water is delivered. Local self-government units maintain records of the islanders and regularly provide this information to the public water supply service provider. The Ministry of Regional Development and EU Funds cofinances the costs of transport by water carriers and water tankers. The amount of water is quite abstract when described this way. Islanders know the quantities very well, and they use a *cisterna* (tank) as a measure unit. The capacity of one *cisterna* is 10 m³, which means that they have the right to eight and a half *cisterne* per household member a year. Water carrier ships delivering water to smaller islands have a capacity of 500,000 liters. When referring to the quantity of water that they need, island residents use the expression *vagon* (wagon), an old measurement unit for mass, where 1 *vagon* equals 10,000 kilograms.

Žirje: Carrying water to the island

Soon two long canvas hoses were lying on the path stretching from the shore across a small lane in front of our home to the well of an isolated house on Glava. Resembling two dead serpents, they waited for the water that would run through them. (Nazor, 2005 [1923]: 38)

Žirje is a small island (15 km²) with 105 permanent residents under the administrative direction of the city of Šibenik. It is also the most remote island in the Šibenik archipelago. The largest settlement is the village of Žirje (also known as *Selo*, literally ‘village’), located in the island’s hinterland bordering the Žirje Plain (*Žirjansko polje*). Other coves and bays on the island are only seasonally inhabited, with a few isolated cases of permanent settlement, such as in Mikavica and Koromašnja.

Žirje was affected by extreme socioeconomic transformation that changed the traditional way of life on the island. The primary industries on the island are agriculture, pasturing, and fishing. Žirje’s fields were completely covered with vineyards by the end of the nineteenth century. At the beginning of the twentieth century, the crisis in viticulture, the appearance of phylloxera, and the economic downturn of that era contributed to intense depopulation. A demographic exodus began then and continued after the Second World War. The island was a military base in the second half of the twentieth century, resulting in its isolation from the mainland and a ban on tourist visits. Tourism on Žirje has mainly remained undeveloped compared to the other islands in the Croatian Adriatic. Due to strategic military interests of the former Yugoslavia and an important role in the

defense of Croatia in the Croatian Homeland War in 1991, it became a unique island in the Croatian archipelago. Due to this, its historical, social, and cultural development differs from the development of other Croatian islands. For more on the history of the island, see the article by Peter Simonič (2024) in this issue of the journal.

The construction of modern, basic island infrastructure began under the Austro-Hungarian Monarchy, with the establishment of a port or ship dock. Yugoslavia expanded this further, primarily by constructing military facilities, with less attention given to infrastructure for the local population. Independent Croatia has also faced the challenge of building a water supply system and providing electrification. Under all the previous regimes, and under Croatia as well, the islanders of Žirje did not have a satisfactory level of infrastructure that would allow them a quality of life like that on the mainland.

There was never a water supply system on Žirje, as there was on the mainland or on other large Croatian islands. Traditionally, the islanders have relied on harvesting rainwater. Most homes on Žirje are equipped with cisterns that collect and store rainwater. Water is supplied from the coast by ship, a water carrier, which fills the communal village cistern, from which the water is distributed through fire hoses to private water tanks or is distributed directly to the residents. There are four such ships in Croatia, with an average age of over sixty years, which often fail to meet the island's drinking water requirements on time and in sufficient quantity. One is under the jurisdiction of the Croatian Navy, and the other three are privately owned and are over sixty years old. The water carrier that brings water to Žirje is *Kapetan Mrs*, built in 1953, with a water tank capacity of 480 m³, a speed of 8.5 knots, and 221 kW of engine power (Novak, Dejhalla, 2020: 71). The volume of each shipment to Žirje is 480 m³. Water from the mainland is supplied when needed, and during summer months water is delivered two to four times per month. In the summer months, this amount is often insufficient, especially for the islanders involved in tourism.

There are also hydrants that, according to islanders, are not equally distributed on the island. The hydrant network is completely lacking in bays or small ports. The islanders maintain their household cisterns by themselves and take care of the water quality in them. They are highly committed to this because both their own health and the health of the tourists staying in the apartments and houses that they rent out depend on it. They also carefully plan and ensure an adequate water supply, particularly during the summer months, often considering the capacity of the water carrier and the allocated amount of subsidized water for the island's households. However, they remain concerned about the upkeep of infrastructure managed by local and regional authorities, such as the wear and contamination of fire hoses used to deliver water to private cisterns.

That water system is in a terrible state, the pipes are in awful condition, everything needs to be replaced. [...] More or less, everyone has a water tank. That large ship arrives, fills the hydrants, water reservoir, and



Figure 1 and 2. Fire hoses used to deliver drinking water to a household on the island of Žirje. Photos: Ana Perinić Lewis, May 2024.

then the water is distributed to the tanks by fire hoses [...] but hoses are old, nobody repairs them, nobody takes care of that. And, it sometimes remains outside, and in the rain all kinds of things happen. Everyone, more or less, cleans the tanks. (Kate, Žirje, around 30)

The hoses are torn, of zero quality, and the water runs like Niagara Falls. There, they stay for a whole year, and now when I need to collect water, it will run through these stinky hoses that frogs, mice, and who knows what animals have snuck into. Such water will flow into my water tank. It's a disaster. (Jadranka, Žirje, around 70)

The islanders rent apartments or rooms to Croatian and foreign guests during the summer season, and a limited or disabled water supply means a threat to their existence. They also face a challenge because the electricity grid covers only part of the island's settlement. Electricity limitations affect the quality of life and equal opportunities. Because water from tanks is drawn using pumps, any electricity shortage also results in a lack of water. They note that it is challenging to explain such infrastructure deficiencies to tourists from countries where these issues do not exist.

When there's no electricity, there's no water either because we rely on a pump. It's manageable for us, but when you have guests in the house,



how do you explain that there's no electricity and, consequently, no water? You might explain it to them, but it's hard for them to understand because they don't live in this kind of environment. [...] So, you end up carrying water in buckets to each apartment floor. And when they use it up, they just leave the empty buckets, and then you have to fill them up again. (Mare, Žirje, around 70)

The islanders stated that their isolation has protected the island from mass tourism. They note that their guests are different from those in other coastal and island destinations. They believe that tourists visiting Žirje seek peace and isolation and respect the island's natural environment and way of life, yet they also feel entitled to the conveniences of modern civilization. Nautical tourism has developed, and most of the interviewees refer to the restaurants in the bays and the concessionaires managing the anchorages for ships and yachts as “*money factories*.” Nevertheless, the islanders' main complaints focus on the excessive number of boats and the behavior of some sailors, prompting them to call for increased controls and regulations during the busy summer months. All the interviewees noted that Žirje offers a Robinson Crusoe–style tourism experience, attracting tourists that come specifically to seek peace and isolation. In the English-language literature on special interest tourism, this concept and term have not been theoretically developed. The closest related terms are ecotourism, sustainable tourism, and adventure tourism. The official website of the Croatian National Tourist Board (CNTB) promotes Robinson Crusoe–style tourism as “a uniquely Croatian experience for modern adventurers” and defines it as follows: “Named after the protagonist of Daniel Defoe’s adventure novel, Robinson Crusoe–style tourism involves staying in properties primarily powered by renewable energy, without running water, electricity, gas, internet, or shops.” Destinations for this specialized type of tourism are islands, mountains, and forests, “where pristine wilderness still has the final say” (Internet 6).

This type of tourist promotion views isolation and remoteness as an advantage, as “the lure of the island” (Baldacchino, 2012). On the other hand, in last ten years newspaper articles and reports referring to Žirje as the “Croatian Cuba” (Internet 7, 8) have appeared in the media. All the interviewees opposed this representation of their island, emphasizing that it undermines the promotion of Žirje as a tourist destination, which should be based on the island's natural beauty and a unique holiday experience distinct from the typical summer tourist options.

Despite the interviewees viewing Robinson Crusoe–style tourism as sustainable and beneficial for the island and islanders, their explanations reveal that this form of tourism is largely a result of the island's lack of, underdeveloped, or incomplete infrastructure. They emphasize that with multiple infrastructure limitations (problems with water supply, electricity, internet, one shop, no hotels, and only four restaurants) Žirje can develop only this type of special-interest tourism (Alviž et al., 2017). They perceive

places on the mainland with well-developed infrastructure as “civilized.” Provision of infrastructure is closely linked with the sense of shaping modern society and progressing toward the future. The availability of running water has come to symbolize what defines civilization itself (Larkin, 2013: 332).

People that love rural environments come here, while those that want a more developed lifestyle go to civilized places, like hotels in Primošten, Vodice, and so on. So, here you get the complete relaxation and peace that you can't find anywhere else but in small, remote places like islands that haven't been fully developed yet. (Jadranka, Žirje, around 70)

In the summer, the island becomes crowded with people, but the winter months bring various experiences of isolation. From the interview, I highlight statements about the experience of isolation on Žirje when bad weather causes power outages on the island and interrupts traffic connections with the mainland.

In 2017, there was a hurricane-force bora wind, everything froze. There was ice; not a single plant [...] all the leaves were frozen. The wind chill factor was -19, -20 °C, and a reporter came four days later when the ship arrived, asking, “How did the island function for four days in complete isolation?” Those of us that were mobile would go help the elderly by lighting a fire, heating their homes, and preparing food. I cooked beans and pasta. I always have five kilos of beans at home; she has some too [pointing to a neighbor and laughing]. Between the two of us, what we have in our houses could literally feed the island for fifteen days. (Mare, Žirje, around 70)

In crisis and extreme isolation, when the beloved sea turns hostile, the best qualities of the small island community emerge—not the challenges depicted in Nazor’s novella, but instead its strengths: connectivity, solidarity, and effective coping strategies that arise within the constraints they face, a community in which members look out for each other. Research on life satisfaction on small islands confirms that it is greatly affected by the extent of preserved social values and the closeness of personal relationships, which include the level of acceptance within the local community, solidarity, and cooperation (Podgorelec et al., 2015).

For islanders, running water remains a long-desired amenity. They have not given up on their wish for a water supply system to be established on their island someday. The Šibenik–Knin County Water Supply Plan (Internet 9) mentions a plan to build the first phase of underwater pipelines from the mainland (at Srma) to the islands of Prvić, Obonjan, Kaprije, and Žirje. In this water supply project, Žirje is the last island

scheduled to be connected to the public water supply system during the “third phase of construction,” which involves building a submarine pipeline between the islands of Kaprije and Žirje. To date, only 553 meters of the planned 21,000 meters of the submarine pipeline have been completed. In most interviews, the interviewees express skepticism that the final phase of the project, which includes Žirje, will be completed in the near future. This skepticism arises from past experiences with failed promises and instances of state carelessness.

Two islands in one: Hvar as a divided island

Hvar is an example of a large island whose water supply network has been partially solved. Hvar is the longest Croatian island (68 km), and it is the fourth-largest island in the Adriatic. The island is administratively divided into two towns (Hvar and Stari Grad) and two municipalities (Jelsa and Sućuraj). It is one of the best-known Croatian islands and is referred to as “Croatia’s premier island,” marked by an outstanding geographical position, a favorable climate, and well-developed tourism (Bradbury, 2011). The town of Hvar is one of the leading Croatian destinations for high-end tourism (Gržinić, Bobanović, 2020).

Hvar is a divided island. In addition to the island boundary, it has an entire network of complex intra-island boundaries. It consists of two micro-regions, whereby the eastern part of the island has always been isolated and distant from the western, more populated, and better developed part of the island. This is a result of the island’s complex history of settlement, migration, changes in rulers and systems, and real and imagined isolation. Today, around 80% of Hvar’s population lives in the western settlements, and the remaining 20% in the eastern part. Throughout history, natural factors⁴ have strongly influenced the location and types of settlements, and limited communication between villages. Initially, the eastern part of the island was isolated as a municipal property in which permanent settlement was forbidden and restricted throughout the Middle Ages. The statute of the medieval commune of Hvar (1331) regulated the oldest administrative island boundary and referred to the eastern part of the island with the historical-administrative name *Plame* (i.e., *confines de Plame*). This rocky and less fertile area of the island was not private property, but land used by shepherds and for cattle breeding and logging (Kovačić, 1998). There were no permanent settlements until the fifteenth century. Afterward, in the sixteenth and seventeenth centuries, it was earmarked for colonial experiments of the Venetian Republic, which organized systematic and planned immigration of new settlers, refugees after the

⁴ The morphology forms a natural boundary between the eastern and western parts of island. The eastern karst area is shaped like a long blade that narrows toward Sućuraj, accounting for 54% of the island’s length and about 42% of its area (Roglić, 1977).

Venetian-Turkish wars. These people were designated to serve in the Venetian navy and defend the Serenissima. These new islanders were further divided and detached from the domicile population by privileges that prevented connection and integration. The Paštrović Privileges (*Privilegije Paštrovića*), which they enjoyed until the arrival of the French authorities in 1804, gave them land to cultivate and exempted them from paying customs and tributes, serving on Venetian galleys in wartime, paying certain taxes, and performing public works. The privileges were withdrawn if the new residents refused military service or married the indigenous people (Čolak, 1959). This was a cause of division and conflicts between groups of old and new residents. The acquired privileges were defended by the newcomers as their privileged isolation, as is clear from many archive records of meetings, elections of representatives, and issues contested before the authorities of the commune of Hvar (Čolak, 1962). During the Second World War, this part of the island was an important point for the organization of defense of Hvar and Central Dalmatia due to its position near the mainland.

Infrastructure built during the Second World War (roads, electricity, the water supply system, and the ferry port in Sućuraj) connected the two regions, but they were also one of the reasons contributing to easier and faster emigration from the island, and immigration to the western part of the island, which offered better living opportunities. The need for employees in tourism was a pull factor for entire families moving out, building houses, and living primarily in the island's urban centers, such as Hvar, Stari Grad, and Jelsa. This part of the island has always been governed by the island's municipal centers (in Yugoslavia the town of Hvar, and today Jelsa and Sućuraj). The depopulated space detached and divided from various centers of power on the island, and oriented toward a different mainland center than the rest of the island (the western part is oriented toward the city of Split, and the eastern part toward Makarska), was additionally neglected in terms of construction and maintenance of infrastructure. The length of the island and the distance between the town of Hvar and Sućuraj (77 km), along with centuries of weak or no inter-island connectivity, have influenced the creation of a marginal area in the east and the focus of the eastern population on the mainland (Perinić Lewis, 2017; Perinić Lewis, Rudan, 2020).

The settlements on the eastern side of the island (Poljica, Zastrazišće, Gdinj, Bogomolje, and Selca kod Bogomolja), as well as their inlets, are not connected to the water supply network like other Hvar settlements. All of this contributes to the emigration of residents from already depopulated settlements, leading to further fragmentation and insularization of the island's spaces and communities. The Hvarski Vodovod website provides a detailed description and map of Hvar's water supply system. In the text where the construction of the water supply network on the eastern part of the island is announced, there is a prevalence of deadpan constructions in the present tense, and particularly in the future perfect, which is used for future actions that are mentioned in the present—for example, “The construction of the water supply system for the eastern



part of Hvar is envisioned from Poljice to Bogomolje, including their inhabited inlets. It is expected that the projects will be realized under EU funding” (Internet 10).

For islanders on Hvar, water infrastructure is a “promissory note” (Appel et al., 2018). Because of a lack of investment, they are experiencing a suspended presence (Carse, Kneas, 2019: 18–20), “a temporary zone between the start of projects and their completion” (Gupta, 2018: 70).

At this point I can call my explorations of Hvar longitudinal due to the time span. Since my first field visits in 2006, I have been observing matters regarding the water supply together with the island residents. Thus, I have also been waiting for the water supply for eighteen years. I present a set of testimonials from my Hvar field research at different time points, which best illustrates the waiting for the future, the slowness in realizing the infrastructure project, and decades of living and working hardships among the islanders, who have been navigating their ways under unfulfilled promises.



Figure 3. Firemen from Jelsa Volunteer Fire Department (DVD Jelsa) delivering drinking water by water truck to a household in a bay on the eastern part of Hvar. Photo: Lana Peternel, September 2024.

You see that we don't have water, you see what the road from Jelsa to Sućuraj looks like, while Hvar has so much tourism! (Margarita, Gdinj, around 60; 2008 interview)

For years they have provided us with drinking water delivered by water trucks, in limited quantities, even though they know that it is a serious problem for all those with small wells and large families, as well as those working in tourism. (Nikola, Zastrazišće, around 50; 2018 interview)

There is still no water supply system, Poljica, Zastrazišće, Bogomolje, but soon there will be [...] in ten years [laughter]. (Jure, Bogomolje, 70; 2023 interview)

When we will get it, if we will get it, I don't know. [...] I've been hearing that we will get it since I was born, but it is what it is. Now I'm old, and still no water [laughter]. (Dino, Bogomolje, around 50; 2023 interview)



Figure 4. Filling a private water tank with delivered drinking water in a bay on the eastern part of Hvar. Photo: Lana Peternel, September 2024.

Apart from no water supply system, other infrastructure such as the roads and electrical system hinder everyday living due to deterioration and lack of repair. In this part of the island there is also the problem of weak electricity or lack of an electricity network in inlets, where most rental in tourism facilities are found. Because water is transported by water trucks, the water supply also depends on the D116 road, built in 1960 and not repaired since. Today, the road on the eastern part of the island is in extremely poor condition, without protective barriers in many parts, and with many sudden curves and poor signage.

Most inlets can be reached by gravel roads. Unimproved roads and unpaved driveways create problems and affect the transport vehicles because they wear out and damage the tires, which increases the costs of water transport. Firemen have pointed out additional problems when, due to increased needs, in the summer they transport water for the whole day in two shifts. In the last few years, there has been a lack of seasonal workforce for water transport.

Yearly, we drive up to 100,000 kilometers with all the vehicles. [...] When I tell some people that when we order truck tires here, they cannot believe it that we change the first tires after 6,000 kilometers. In the summer we drive from 5:30 in the morning until nine in the evening [...] it's totally exhausting for the people and vehicles... The average is fifteen cisterne a day. We have to drive to cover the demands, which have already started to be enormous. (Fireman)



Coping strategies: How to (mis)use islands' privileges

Island economies are small-scale economies based on a “mixed” economic model of the island household and diversification of economic activities (Montana, 1994). To cope with scant resources, islanders have historically diversified their livelihoods, striving for the optimal use of what is available. Islanders living close to unfinished and neglected infrastructure get by in various ways. Their testimonies evoke an image of an islander-bricoleur,⁵ who gets by under challenging situations, imposed limitations, and crises by employing the skills of improvisation and adaptation. Those engaged in tourism activities enlarge water tanks on their own, and they install solar panels in places with no electricity to provide for their guests. Subsidized water is intended for household consumption and for islanders that reside in these places, and not for commercial entities on the island, which are charged a higher price for water. At that price, tourism would not be profitable. Consequently, several family members often register their residence on the island, or several friends get together to do so, despite not permanently residing there, to obtain water at subsidized prices. In doing so, they find that, in relation to other islanders that have access to the water supply, they are in fact second-class citizens. When the municipal infrastructure is lacking, local communities take the initiative and create their own innovative solutions to address infrastructure challenges (Wells et al., 2021). When institutions ignore the special circumstances of the island, this always opens the door to informal, non-institutional activities and organization in a “gray zone.”

Mum is registered down in the inlet, whereas father is up in the village. If they were both registered in the village, nobody would deliver water to the inlet and vice versa [...] we would be left without water. (Ante, Gdinj, 50)

I shouldn't be provided with this water, in the first place. I need to sort of freeload, with someone's eyes closed, then I have a friend that is registered as a resident here, whereas he actually lives in the town of XX, and then I am given a couple of cisterne on his behalf. I need to engage in fraud, which is not at all [...] honorable, but otherwise how? (Dinko, Bogomolje, 50)

⁵ Lévi-Strauss's concept of *bricolage* was first articulated in *The Savage Mind* (1962) as metaphor for how cultures employ existing symbols and structures to create new meanings. Subsequently, *bricolage* has become a term to describe various processes of structured improvisation. The *bricoleur* is described as “someone who works with their hands,” utilizing “odds and ends” because there are no other resources available (Johnson, 2012).

The islanders are disappointed with the state and do not believe that it will take care of their needs and build the infrastructure. They only believe in what they provide or build themselves. Instead of reliance on the state and large-scale capital investment in infrastructure, they engage in self-construction, alone or by mobilizing the community in a joint building project (Silver, 2014).

When you depend on the state to provide something for you, I laugh at it ... You can't expect anything from the state; everything is set up so that an ordinary man can't get anything. (Dinko, Bogomolje, 50)

The state—nothing. We built the road to the inlet by ourselves. It was completely built by private funds in 1986, there were sixteen of us, and each weekend we paid for the road construction work by ourselves. We were having a harder time then than when we were building the new house, when my children were small, going to school, and it was them for whom money needed to be provided. (Mare, Gdinj, 70)

The lack of water supply infrastructure is due to the state, which is the only stakeholder that can carry out such large and expensive projects. As a rule, this project has been postponed in favor of projects implemented in the more developed part of Hvar. A water supply creates dependence on the municipality of Jelsa or Sućuraj and state subsidies, ensuring that the residents will remain and work in tourism, under much harder circumstances than in other island settlements.

The state is criticized by the employees at Hvarski Vodovod that organize water supply. They emphasize the neglect and isolation of the eastern part of the island. They think that the state must not impose limits on the quantity of water or condition that subsidized water can be used only for the residential needs because people should be allowed to pursue tourism in the same way and under the same conditions as in other island settlements. They do not allow the state to interfere with local decisions on the approval of requested amounts of water, but demand that it build infrastructure so that they will not live as “second-class citizens.”

You have to give him water to water the garden, flowers, and not just to drink, to stay alive. What use if he stays alive in some wilderness over there? He needs to have a way to rent his apartment, to provide a guest with enough, to be economically grounded to be able to live there. If not, then we won't live there. That's what I was always saying at Hrvatske Vode, the ministry, fighting against that amount of water that they purportedly limit. They demanded that we lower the price, “You need to control that.” I say: “Let that go. We control that. All right, goodbye!” (Ivo, Jelsa, around 60)



Criticism of mistreatment by state authorities is common in island communities. This reflects an asymmetrical relationship and marginalization. Islanders are generally forced to accept decisions made by central authorities regarding their peripheral status, with these decisions often shaped by traditional views that perceive islands as inherently different from the expectations of mainland societies (Bustos, Román, 2019: 99–100).

Uniform national developmental policies do not impact all regions equally, especially in sensitive areas like islands. Despite the measures implemented over the past quarter of a century, island development planning remains fragmented and unintegrated.

Conclusion

Those folks are also gaunt, dark, and stringy, like their vines. The fluids in them have thickened; I would say that all their veins have become stringent and twisted in knots, to try to keep at least those tiny droplets of juice that remained in them. (Nazor, 2005 [1923]: 9–10)

Technological innovations such as telemedicine, energy solutions such as solar panels and wind turbines, desalination plants, and broadband internet services have reduced the “handicap” associated with island living in the twenty-first century (Baldacchino, Starc, 2021: 4), but it is paradoxical how infrastructure for basic living conditions on some islands still has not been established.

Islanders living on small islands and parts of large islands without water supply infrastructure experience varying degrees of remoteness, peripherality, and isolation. Surrounded by the sea, they order and wait for drinking water that travels by water-carrier ships or tanker trucks. In procuring drinking water, they are highly dependent on the reliability of transportation, weather conditions affecting deliveries by ship, the state of maintenance of other infrastructure through which the drinking water must “travel” to reach their homes (including roads, electricity networks, and the people delivering it), and the water’s quality. In addition, the willingness of the state to subsidize these water deliveries plays a critical role in their access to this vital resource. Securing a sufficient quantity of drinking water essential for daily life and tourism, islanders must consider the logistics of water storage: *vagoni*, *cisterne*, cubic meters, and estimates: how much will be needed daily, weekly, and yearly. This often leads to concerns about whether there will be enough water to meet the demands of both locals and tourists visiting the island. In addition to waiting for water deliveries, islanders also find themselves waiting for the fulfilment of promises concerning the construction of water supply infrastructure, listening to and observing projects, and visions of a water future. They are aware that most citizens on the mainland easily meet such needs with the simple act of turning on a tap.

Both islands in this article are examples of various forms of isolation, detachment, and boundedness that have lasted throughout history, and are nowadays continued or even reinforced by absent or neglected infrastructure. Both islands are doubly peripheral: not only at the margins of local interest, but also neglected by regional and state authorities. Due to its small size and remoteness, Žirje, as an outlying and strategically important island, has been more isolated than other islands in the Šibenik archipelago throughout all its history. Although Žirje shares a similar fate as other small Croatian islands, the specific historical and contemporary experiences of isolation among the residents of Žirje are unique. Due to its inaccessibility and lack of basic infrastructure, it is perceived as an isolated place. Today, Žirje is on the brink of either depopulation or a shift from permanent to temporary habitation.

Hvar is a divided island, whose inter-island boundaries and divisions create islands within the island. The eastern part of Hvar is a space of otherness in terms of geography, history, and identity: it is eternally remote and at the margin of interest of island authorities and administrations, subject to the postponement or restriction of development in favor of the more populated and economically more developed part of the island. Constant investment in island centers with strongly developed tourism further aggravates the feeling of neglect and isolation. Depopulation and ageing of the population cause visible voids evidenced in empty hamlets or entire villages. Due to additional infrastructure scarcities, emptiness is difficult to activate as an opportunity. More often, it represents loss and disappearance (Dzenovska et al., 2023).

Žirje and the settlements on the eastern part of Hvar have never had a water supply system, nor access to drinking water in the same way that the mainland or the islands with a water supply infrastructure. In the case of Hvar, residents of the eastern part observe their neighbors—fellow islanders that, unlike them, have been using this infrastructure for decades. Water is delivered to the residents of both islands by water carriers and water trucks, which they depend on. Their lives and jobs are different from those of the mainland population, and those of most other islanders. In addition to other challenges of island life, they are additionally concerned about the quality and maintenance of their own water tanks and testing the quality of drinking water—which, if neglected, may jeopardize their health, and the health of tourists, whom their existence depends on. On Žirje, in addition to feeling isolated and neglected by the city of Šibenik, and in the eastern part of Hvar, feeling overlooked by the municipality and regional administration, the islanders also feel helpless and abandoned by the state. Water infrastructure and the availability of drinking water highlight the hidden practices of interactions between the state and islanders. The state introduces processes that lead to prolonged and exhausting isolation on the islands. For my interviewees, the state played a key role in positioning Žirje and the eastern part of Hvar on the social, demographic, and economic periphery. Islanders express their views on laws and rules, seeing the state as hypocritical, discriminatory, and inefficient. Older islanders express an emotional

relationship with the state, and they are tired of prolonged waiting, hoping, and requesting. For islanders, the state lacks credibility and does not seem to prioritize its citizens, especially those in remote areas (Peternel, Perinić Lewis, 2025).

The lack of water supply infrastructure, poorly maintained roads, absent or weak power supply, and inadequate coverage and strength of internet connections are strong material testimony to multifold neglect and negligence. Similarities emerge in the employment of various coping strategies by the islanders, often implying avoidance of rules and laws, which in all their prescriptiveness and inflexibility do not take into account the specific characteristics of the islands and their communities. Due to the lack of water as a basic infrastructure, resource, and human right, and forced to depend on the local and state aid in its provision, they feel like second-class citizens. They believe that they can enjoy better living and working conditions only through their own individual or collective (but nevertheless island community-based) engagement, actions, and organization. Older people are particularly aware that they will not live long enough to witness the realization of promises that the infrastructure will be built. Based on the unfulfilled promises, unrealized projects, development plans, and strategies, they believe that—like many times before in the island's history—they will remain paradigmatic examples of isolates.

Acknowledgements

The research is part of the project Isolated People and Communities in Slovenia and Croatia—ISOLATION, a Slovenian–Croatian bilateral project of the Slovenian Research Agency (ARRS) and the Croatian Science Foundation (HRZZ), IPS-2022-02-3741; 2022–2025 (principal investigators: Lana Peternel, Institute for Social Research in Zagreb, Croatia, and Dan Podjed, ZRC SAZU, Institute of Slovenian Ethnology, Slovenia).

References

- Alviž, Kristina, Bruna Bušac, and Jelena Šišara. 2017. Tourism on Šibenik's Islands: Alternative to Mass Tourism. In *Proceedings 3rd International Scientific and Professional Conference "Challenges of Today: Sustainable Coastal and Maritime Tourism"*, eds. Branko Cavrić, Tomislav Rimac, and Dragan Zlatović, 77–85. Šibenik: Veleučilište u Šibeniku.
- Anand, Nikhil. 2011. Pressure: The PoliTechnics of Water Supply in Mumbai. *Cultural Anthropology* 26 (4): 542–564. DOI: <https://doi.org/10.1111/j.1548-1360.2011.01111.x>.
- Appel, Hannah, Nikhil Anand, and Akhil Gupta. 2018. Introduction. Temporality, Politics, and the Promise of Infrastructure. In *The Promise of Infrastructure*, eds. Nikhil Anand, Akhil Gupta, and Hannah Appel, 1–38. Durham, London: Duke University Press.
- Babić, Dragutin, Ivan Lajić, and Sonja Podgorelec. 2004. *Otoci dviju generacija*. Zagreb: Institut za migracije i narodnosti.

- Baldacchino, Godfrey. 2012. The Lure of the Island: A Spatial Analysis of Power Relations. *Journal of Marine and Island Cultures* 1 (2): 55–62. DOI: <https://doi.org/10.1016/j.imic.2012.11.003>.
- Baldacchino, Godfrey and Nenad Starc. 2021. The Virtues of Insularity: Pondering a New Chapter in the Historical Geography of Islands. *Geography Compass* e12596. DOI: <https://doi.org/10.1111/gec3.12596>.
- Ballestero, Andrea. 2019. The Anthropology of Water. *Annual Review of Anthropology* 48: 405–421. DOI: <https://doi.org/10.1146/annurev-anthro-102218-011428>.
- Božanić, Joško. 2023. Paradoksalnost fenomena insularnosti – iskustvo UNESCO-ova Geoparka Viški arhipelag. In *Otočnost u suvremenom društvenom kontekstu – pogled u budućnost: zbornik radova*, eds. Miljenko Jurković and Jana Vukić, 261–284. FF Open Press. DOI: <https://doi.org/10.17234/9789533791968>.
- Bradbury, Paul. 2011. *Hvar – An Insider’s Guide to Croatia’s Premier Island*. GuideGecko (eBook).
- Bratanić, Mateo. 2020. *Pomorstvo Dalmacije u 19. stoljeću: otok Hvar u tranziciji*. Zadar, Stari Grad: Sveučilište u Zadru, Muzej Staroga Grada.
- Bustos, Beatriz and Álvaro Román. 2019. A Sea Uprooted: Islandness and Political Identity on Chiloé Island, Chile. *Island Studies Journal* 14 (2): 97–114.
- Carse, Ashley and David Kneas. 2019. Unbuilt and Unfinished. The Temporalities of Infrastructure. *Environment and Society* 10 (1): 9–28. DOI: <https://doi.org/10.3167/ares.2019.100102>.
- Chelcea, Liviu and Gergő Pulay. 2015. Networked Infrastructures and the ‘Local’: Flows and Connectivity in a Postsocialist City. *City: Analysis of Urban Trends, Culture, Theory, Policy, Action* 19 (2–3): 344–355. DOI: <https://doi.org/10.1080/13604813.2015.1019231>.
- Čolak, Nikola. 1959. Iz života iseljenika Makarske i njenog Primorja na srednje dalmatinskom otočju u 17. i 18. stoljeću. *Prilozi povijesti otoka Hvara* 1 (1): 87–121.
- Čolak, Nikola. 1962. Borba novih stanovnika na srednje dalmatinskom otočju u 17. i 18. stoljeću za očuvanje stečenih privilegija. *Prilozi povijesti otoka Hvara* 2 (1): 52–89.
- Conkling, Philip. 2007. On Islanders and Islandness. *Geographical Review* 97 (2): 191–201.
- Dadić, Željko, Magdalena Ujević, Edo Lovrić, Ivan Mijatović, and Dragutin Gereš. 2008. Improvement of Water Supply on Inhabited Croatian Islands, Workshop on the Protection of Groundwater as a Source of Drinking Water in Karst Areas, Malinska, Island Krk, Croatia. 14–15 April.
- Di Nunzio, Marco. 2018. Anthropology of Infrastructure. *LSE Cities, Governing Infrastructure Interfaces-Research Note* 1: 1–4.
- Drazin, Adam. 2018. The Fitness of Persons in the Landscape: Isolation, Belonging and Emergent Subjects in Rural Ireland. *Social Anthropologist* 26 (4): 447–602. DOI: <https://doi.org/10.1111/1469-8676.12521>.
- Dzenovska, Dace. 2020. Emptiness: Capitalism without people in the Latvian countryside. *American Ethnologist* 47 (1): 10–26. DOI: <https://doi.org/10.1111/amet.12867>.
- Dzenovska, Dace, Volodymyr Artiukh, and Dominic Martin 2023. Between Loss and Opportunity. *Focaal* 96: 1–15. DOI: <https://doi.org/10.3167/fcl.2023.960101>.
- Faričić, Josip and Damir Magaš. 2004. Contemporary Socio-Geographic Issues of Small Croatian Islands – the Example of Žirje Island, Croatia. *Geoadria* 9 (2): 125–158. DOI: <https://doi.org/10.15291/geoadria.133>.
- Faričić, Josip and Anica Čuka. 2020. The Croatian Islands: An Introduction. In *The Notion of Near Islands. The Croatian Archipelago*, ed. Nenad Starc, 55–88. Landham, Boulder, New York, London: Rowman & Littlefield Publishers.



- Foley, Aideen, Laurie Brinklow, Jack Corbett, Ilan Kelman, Carola Klock, Stefano Moncada, Michelle Mycoo, Patrick Nunn, Jonathan Pugh, Stacy-Ann Robinson, Verena Tandrayen-Ragoobur, and Rory Walshe. 2023. Understanding “Islandness”. *Annals of the American Association of Geographers* 113 (8): 1800–1817. DOI: <https://doi.org/10.1080/24694452.2023.2193249>.
- Greek, Martin. 2021. The Connective and Disconnective Capacities of Water Infrastructure: The Making of Chile’s Largest Off-grid Solar Power Irrigation System. *kritisk etnografi – Swedish Journal of Anthropology* 4 (2): 99–112. DOI: <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-463869>.
- Gržinić, Jasmina and Mieta Bobanović. 2020. Luksuzni turizam i stavovi dionika – odabrani obalni gradovi Hrvatske. *Oeconomica Jadertina* 10 (1): 56–73.
- Gunjača, Zlatko. 1986. Kasnoantička fortiifikacijska arhitektura na istočnojadranskom priobalju i otocima. *Materijali* (Savez arheoloških društava Jugoslavije) 22: 124–136. [Reprinted in: Kale, J. and Ž. Krnčević, 1994: 49–59.]
- Gupta, Akhil. 2018. The Future in Ruins: Thoughts on the Temporalities of Infrastructure. In: *The Promise of Infrastructure*, eds. Nikhil Anand, Akhil Gupta, and Hannah Appel, 62–79. Durham, London: Duke University Press.
- Hay, Pete. 2006. A Phenomenology of Islands. *Island Studies Journal* 1 (1): 19–42.
- Hay, Pete. 2013. What the Sea Portends: A Reconsideration of Contested Island Tropes. *Island Studies Journal* 8 (2): 209–232.
- Hayward, Philip. 2012. Aquapelagos and Aquapelagic Assemblages. *Shima* 6 (1): 1–11.
- Hraste, Mate. 1956. Antroponimija i toponimija općine hvarske. *Hrvatski dijalektološki zbornik* 1, JAZU: 331–385.
- Ilakovac, Boris. 2008. Roman aqueducts on the Island of Pag. *Vjesnik Arheološkog muzeja u Zagrebu* 41 (1): 129–166.
- Iveković, Ćiril Metod. 1927. Otok Žirje, Starohrvatska prosvjeta, N. s. I/1-2, Zagreb – Knin, 45–59. [Reprint in: *Žirajski libar* 1, ed. Eduard Kale, 27–33. Šibenik: Nakladno povjerenstvo Žirajskog libra, Muzej grada Šibenika.]
- Jalžić, Branko. 1994. Jama Gradina na otoku Žirju. In *Žirajski libar* 1, ed. Eduard Kale, 44–47. Šibenik: Nakladno povjerenstvo Žirajskog libra, Muzej grada Šibenika.
- Johnson, Christopher. 2012. Bricoleur and Bricolage: From Metaphor to Universal Concept. *Paragraph* 35 (3): 355–372.
- Kale, Jadran. 2009. Posmrtni život otočnog pašnjaka. In *Destinacije čežnje, lokacije samoće. Uvidi u kulturu i razvojne mogućnosti hrvatskih otoka*, eds. Ines Prica and Željka Jelavić, 235–268. Zagreb: Institut za etnologiju i folkloristiku, Hrvatsko etnološko društvo.
- Kordej-De Villa, Željka and Nenad Starc. 2020. On the Rim of Croatia and Croatian Development Policies. In *The Notion of Near Islands. The Croatian Archipelago*, ed. Nenad Starc, 215–248. Landham, Boulder, New York, London: Rowman & Littlefield Publishers.
- Kovačić, Joško. 1998. Župa Zastrazišće na Hvaru. *Služba Božja: liturgijsko-pastoralna revija* 38 (2): 159–184.
- Larkin, Brian. 2013. The Politics and Poetics of Infrastructure. *Annual Review of Anthropology* 42: 327–343.
- Löfgren, Orvar. 2004. Concrete Transnationalism? Bridge Building in the New Economy. *Focaal – European Journal of Anthropology* 43: 59–75.
- Marasović-Alujević, Marina and Ines Grgurinović. 2011. Etimologijsko istraživanje romanskih obalnih toponima Žirja. *Zbornik radova Filozofskog fakulteta u Splitu* 4 (4): 17–27.
- Mikulandra, Katarina and Linda Rajhvajn Bulat. 2022. Kvaliteta života mladih s otoka Prvića. *Socijalna ekologija* 31 (3): 297–333. DOI: <https://doi.org/10.17234/SocEkol.31.3.3>.

- Mišura, Antonija, David Sopta, and Ana Perić-Hadžić. 2020. Impact of Traffic Connectivity on Island Development. *Naše more: znanstveni časopis za more i pomorstvo* 67 (1): 69–77. DOI: <https://doi.org/10.17818/NM/2020/1.10>.
- Montana, Mladen. 1994. Ekonomija malih razmjera u otočnom razvoju. *Društvena istraživanja: časopis za opća društvena pitanja* 3 (4–5): 531–546.
- Nazor, Vladimir. 2005 [1923]. *Voda i druge pripovijetke*. Zagreb: ABC naklada.
- Novak, Josip and Roko Dejhalla. 2020. Preliminary Design of a Drinking-water Carrier for Water Supply to the Croatian Islands. *Pomorski zbornik – Journal of Maritime and Transportation Sciences* 3 (Special Edition): 63–75.
- Orlove, Ben and Steven C. Caton. 2010. Water Sustainability: Anthropological Approaches and Prospects. *Annual Review of Anthropology* 39 (1): 401–415. DOI: <https://doi.org/10.1146/annurev.anthro.012809.105045>.
- Pavličić, Pavao. 2010. More nije voda. *Vijenac* 430–431. URL: <https://www.matica.hr/vijenac/430/more-nije-voda-1685>.
- Perinić Lewis, Ana. 2017. *Otoci otoka Hvara. Pluralizam lokalnih otočnih identifikacija*. Zagreb: Hrvatska sveučilišna naklada.
- Perinić Lewis, Ana and Pavao Rudan. 2020. Two Islands in One: The Island of Hvar. In *The Notion of Near Islands. The Croatian Archipelago*, ed. Nenad Starc, 173–198. Landham, Boulder, New York, London: Rowman & Littlefield Publishers.
- Peternel, Lana and Ana Perinić Lewis. 2025 [in print]. Perception and Visibility of the State on the Island of Žirje, Croatia. *Shima*.
- Petrić, Nikša and Stanislav Štambuk. 2007. *Ruzmarinska zadruga 1892. Obljetnica*. Velo Grablje: “Pjover” – udruga za zaštitu i revitalizaciju Velog Grablja.
- Podgorelec, Sonja, Margareta Gregurović, and Sanja Klempić Bogadi. 2015. Satisfaction with the Quality of Life on Croatian Small Islands: Zlarin, Kaprije and Žirje. *Island Studies Journal* 10 (1): 91–110. DOI: <https://doi.org/10.24043/isj.322>.
- Podrug, Emil, Jelena Jović, and Željko Krnčević. 2016. Arheološka baština šibenskih otoka. In *Toponimija šibenskog otočja*, ed. Vladimir Skračić, 49–74. Zadar: Sveučilište u Zadru.
- Roglić, Josip. 1977. Prilog geografiji Hvara. In *Hvar u prirodnim znanostima (zbornik simpozija održanog 1975. g. u Hvaru u organizaciji Zavoda za povijest prirodnih, matematičkih i medicinskih znanosti JAZU)*. Zagreb: JAZU.
- Ronström, Owe. 2021. Remoteness, Islands and Islandness. *Island Studies Journal* 16 (2): 270–297. DOI: <https://doi.org/10.24043/isj.162>.
- Runko Luttenberger, Lidija. 2017. Održiva vodoopskrba otoka. *Politehnika: Časopis za tehnički odgoj i obrazovanje* 1 (1): 45–55.
- Silver, Johnatan. 2011. Incremental Infrastructures: Material Improvisation and Social Collaboration Across Post-colonial Accra. *Urban Geography* 35 (6): 788–804. DOI: <https://doi.org/10.1080/02723638.2014.933605>.
- Simonić, Peter. 2024. The Island of Žirje: Challenging Claims of Isolation. *Traditiones* 53 (2): 63–91. DOI: <https://doi.org/10.3986/Traditio2024530204>.
- Sirovica, Stjepan. 1994. Zabilješke o otoku Žirju u povijesti medicine Dalmacije povodom jedne epidemije malarije. In *Žirajski libar* 1, ed. Eduard Kale, 208–219. Šibenik: Nakladno povjerenstvo Žirajskog libra, Muzej grada Šibenika.
- Skračić, Vladimir and Nataša Šprljan. 2016. Semantička klasifikacija toponima na šibenskim otocima. In *Toponimija šibenskog otočja*, ed. Vladimir Skračić, 321–346. Zadar: Centar za jadranska onomastička istraživanja Sveučilišta u Zadru.

- Starc, Nenad. 2020. Introduction. In *The Notion of Near Islands. The Croatian Archipelago*, ed. Nenad Starc, 1–14. Boulder, New York, London: Rowman & Littlefield Publishers.
- Taburšković, Vinko and Marin Mićunović. 2022. Značenje vode za razvoj Starog Grada i Starogradskeg polja. In *Hvarski arhipelag i arheologija dalmatinskih otoka: od dinamične prošlosti do kulturnog turizma*, eds. Eduard Visković, Marina Ugarković, and Domagoj Tončinić, 173–181. Zagreb: Hrvatsko arheološko društvo, Institut za arheologiju.
- Vannini, Philip and Jonathan Taggart. 2013. Doing Islandness. A Non-representational Approach to an Island's Sense of Place. *Cultural Geographies* 20 (2): 225–242. DOI: <https://doi.org/10.1177/1474474011428098>.
- Vitasović, Anton. 2006. Opskrba vodom i rimski vodovod na brdu Gradina na otoku Veliki Brijun. *Histria Archaeologica* 37: 47–82.
- Vlahović, Tatjana and Želimir Pekaš. 2002. Prirodni uvjeti, stanje i mogućnost vodoopskrbe Jadranskih otoka. In *Zbornik radova, I. znanstveno-stručni skup "Turizam, vodno gospodarstvo i zaštita mora"*, 105–119. Opatija.
- Von Schnitzler, Anita. 2013. Traveling Technologies: Infrastructure, Ethical Regimes, and the Materiality of Politics in South Africa. *Cultural Anthropology* 28 (4): 670–693. DOI: <https://doi.org/10.1111/cuan.12032>.
- Voudouris, Konstantinos, Mohammad Valipour, Asimina Kaiafa, Xiao Yun Zheng, Rohitashw Kumar, Katharina Zanier, Elpida Kolokytha, and Andreas Angelaki. 2019. Evolution of Water Wells Focusing On Balkan and Asian Civilizations. *Water Supply* 19 (2): 347–364. DOI: <https://doi.org/10.2166/ws.2018.114>.
- Vujnović, Nikša. 2022. Prilozi poznavanju toponimije istočnog dijela otoka Hvara. *Prilozi povijesti otoka Hvara* 15 (1): 317–331.
- Weiss, Linda. 2011. The State in the Economy: Neoliberal or Neoactivist? In *The Oxford Handbook of Comparative Institutional Analysis*, eds. Glenn Morgan, John L. Campbell, Colin Crouch, Ove Kaj Pedersen, and Richard Whitley, 183–210. *Oxford Academic* [Online]. DOI: <https://doi.org/10.1093/oxfordhb/9780199233762.003.0008>.
- Wells, E. Christian, Mathews J. Wakhungu, and W. Alex Webb. 2021. Water Infrastructures. *Oxford Research Encyclopedia of Anthropology*. DOI: <https://doi.org/10.1093/acrefore/9780190854584.013.474>.

Internet sources

- Internet 1. The Constitution of the Republic of Croatia as of 15.1.2014, Consolidated text, *Official Gazette* 56/90, 135/97, 113/00, 28/01, 76/10 and 5/14. URL: https://www.usud.hr/sites/default/files/dokumenti/The_consolidated_text_of_the_Constitution_of_the_Republic_of_Croatia_as_of_15_January_2014.pdf (accessed 2.6.2024).
- Internet 2. Hvarski vodovod [Hvar Water Supply Company]. History of water distribution. URL: <https://hvarskivodovod.hr/povijest-distribucije-pitke-vode> (accessed 10.5.2024).
- Internet 3. Hrvatske vode [Croatian Waters]. Multi-Annual Programme for the Construction of Municipal Water Structures for the Period up to 2030. URL: <https://voda.hr/sites/default/files/dokumenti/upravljanje-vodama/visegodisnji-programi/SA%C5%BDETAK%20-%20VPGKVG.pdf> (accessed 10.5.2024).
- Internet 4. K., J. 2022. U ovoj godini osigurano 15,8 milijuna kuna za opskrbu otoka pitkom vodom. *Morski.hr*, 6 March. URL: <https://www.morski.hr/u-ovoj-godini-osigurano-158-milijuna-kuna-za-opskrbu-otoka-pitkom-vodom> (accessed 12.8.2024).

- Internet 5. Zakon o otocima [The Island Act]. 2018. URL: <https://www.zakon.hr/z/638/Zakon-o-otocima> (accessed 2.5.2024).
- Internet 6. Croatian National Tourist Board. n.d. URL: <https://croatia.hr/en-gb/nature/robinson-crusoe-style-tourism-a-uniquely-croatian-experience-for-modern-adventurers> (accessed 2.10.2024).
- Internet 7. Najudaljeniji šibenski otok. Otok Žirje zaboravljen kao Kuba: umjesto “Cadillaca”, na cestama “jugiči” i “stojadini”. 2017. *Šibenski portal*, 21 July. URL: <https://net.hr/danas/vijesti/otok-zirje-zaboravljen-kao-kuba-umjesto-cadillaca-na-cestama-jugici-i-stojadini-73d28032-b9f0-11ec-94a7-0242ac120015> (accessed 2.7.2024).
- Internet 8. Žirje ili hrvatska Kuba: Rajski otok čudesnih pogleda i bizarnih detalja. 2023. *ŠibenikIN*, 24 June. URL: <https://m.sibenik.in/foto/zirje-ili-hrvatska-kuba-rajski-otok-cudesnih-pogleda-i-bizarnih-detalja/174471.html> (accessed 2.7.2024).
- Internet 9. Plan vodoopskrbe Šibensko-kninske županije [Water Supply Plan of the County of Šibenik-Knin]. 2010. URL: https://voda.hr/sites/default/files/2021-11/plan_vodoopskrbe_sibensko-kninske_zupanije_tekst.pdf (accessed 11.8.2024).
- Internet 10. Hvarski vodovod [Hvar Water Supply Company]. URL: <https://hvarskivodovod.hr/vodoopskrbni-sustav> (accessed 12.4.2024).

Povezani z vodo, izolirani zaradi vode: voda in oskrba z vodo na dveh hrvaških otokih

Življenje brez vodne infrastrukture vpliva na vsakdanje življenje otočanov in pogosto omejuje njihov gospodarski razvoj. V članku je predstavljena etnografska raziskava o pomanjkljivi vodni infrastrukturi na dveh hrvaških otokih – na Žirju in vzhodnem delu Hvara, ki ponazarjata spreminjajoče se izkušnje razvoja v izoliranih skupnostih. Gre namreč za različne oblike izoliranosti, odmaknjenosti in zamejenosti, ki so se ohranile skozi zgodovino in se danes zaradi pomanjkanja vode ali zanemarjene vodne infrastrukture nadaljujejo ali celo krepijo. Otočani so odvisni od dostave vode s cisternami in tovornjaki. Njihovo življenje in preživetje se razlikujeta od življenja celinskega prebivalstva in večine drugih otočanov. Poleg običajnih izzivov otoškega življenja so še posebej zaskrbljeni zaradi transporta, količine in kakovosti vode, potrebne za njihove dnevne potrebe in turizem. Na podlagi etnografskih podatkov se analiza osredinja na vlogo države, kakor jo dojemajo otočani, pri zgraditvi, rekonstrukciji in vzdrževanju vodovodne infrastrukture na otokih ter na strategije obvladovanja otočanov, ki so živel brez stabilnih virov pitne vode. Etnografska raziskava vode na otokih, kjer je voda že od nekdaj redek in dragocen vir, kritično raziše družbeno, kulturno in ekonomsko vlogo vode kot dejavnika preživetja ali izginjanja ter njene politične in demografske posledice.