

Sea and Ocean as Fountains of Islanders' Life and Creative Activities: An Ecological Perspective to Confront the Global Crisis

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ABSTRACT

This paper considers the possibility of arts and performing arts to challenge the global crisis of the so called Anthropocene. It is the most recent period in Earth's history when human activities significantly impacted the climate and ecosystems. This is exemplified by the case of Miyako Islands, the remote islands of Okinawa Prefecture, which illustrate how water has been fountains of islanders' lives and creative activities is discussed. The theoretical background of this study includes *nissology* (island study) that has established the concept of an island, "*aquapelago/aquapelagic*" assemblages, the concept proposed by Hayward (2012), and ecomusicology. The "*aquapelago*" assemblages are integrated marine and terrestrial spaces for human beings, organisms and supernatural beings, such as the iconic imagined mer creature—the mermaid. Ecomusicology is defined as the study of music, culture, sound and nature in a period of environmental crisis. Although the underground dam was constructed to share the water with human beings, *midzi-nu-nusi ru:gu*, the gods living in the underground/underwater space, are believed with awe and reverence. This traditional and/or Indigenous Ecological Knowledge (TEK/IEK) concerned with water for living in Miyako Islands has been passed down from generation to generation through folklore, arts, and performing arts and remains at the historical sites and inspired creating performing arts. Interdisciplinary research on sea and ocean encourages artists and performers as well as scientists, technicians, and politicians to think and practice for Earth's sustainable future.

KEYWORDS

aquapelagic assemblages, ecomusicology, folklore, mermaid, Okinawa, underground dam

Introduction

It is significant and timely to hold this international seminar to discuss the theme, "Ocean of Creative Artistic Potency in the Present Epoch," for sea and ocean connect communities of people of islands and continents through navigation. This will be an excellent opportunity to share academic knowledge to advance our cultural traditions. In this presentation, I provide a topic regarding the urgent global issue and the possible role of arts and performing arts.

The vast expanses of the sea and ocean serve as profound sources of inspiration, bestowing upon artists, musicians, and dancers the wellspring of creative ingenuity. Simultaneously, they stand as vital reservoirs of sustenance for the inhabitants of islands and coastal regions. Within the fabric of our daily existence, marine resources, exemplified by venerable products like *katsuobushi*, *cakalang*, and dried bonito flakes derived from the skipjack tuna (*Katsuwonus Pelamis*), constitute the quintessential components of both Japanese and Okinawan culinary traditions. It is paramount to recognize that the advent of capitalism and the transformation of economic structures from subsistence-oriented paradigms mark pivotal

epochs in this intricate narrative [1] to international commercial trade, which made ordinary people consume high-quality foods and goods.

Beautiful beaches of tropical islands are economically important tourist attractions. In Okinawa, tourism modeled in Hawai'i has caught up with the tourism income and employment of Hawai'i [2]. It is known that the Balinese have provided a successful model of cultural tourism, including performing arts [3]. Students and graduates of Okinawa Prefectural University of Arts have contributed to tourism by designing souvenirs and dance and music performances for tourists.

Nevertheless, it is imperative to acknowledge that the multifaceted actions undertaken by humankind which have exerted a profound influence on the intricate Earth System [4], have engendered substantial alterations within various domains, including the atmosphere, biosphere, cryosphere, geosphere, hydrosphere, pedosphere, technosphere, and the very climate itself. This perturbation has, regrettably, exacted a toll upon our invaluable marine resources. In elucidating this phenomenon, it is worth noting that Paul J. Crutzen [5], introduced the nomenclature "Anthropocene" to encapsulate the present epoch. This term has subsequently garnered diverse and nuanced interpretations across a spectrum of scholarly disciplines, encompassing but not limited to the environmental and social sciences and the humanities [6].

The elucidation of the mechanism of the adaptation of ecosystems to sea and ocean is a pressing issue for the sustainability of Earth and lives. A press release on 12th October 2023 informs that the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) and Tōhoku University proposed the WPI-Advanced Institute for Marine Ecosystem Change, (hence WPI-AIMEC) to establish a platform for the foremost researchers to challenge this issue, and that this project was selected as the World Premier International Research Center Initiative of this year by Ministry of Education, Culture, Sports, Science and Technology, Japan [7].

This paper discusses the role and possibility of arts and performing arts for sustainable future development. The theories of *nissology* and *ecomusicology*, and the concept of the "*aq-uapelago/aquapelagic assemblages*" are referred to as characterizing the nature of the environment and culture of islands.

Method

The term "*nissology*," denoting the scholarly examination of islands, was originally introduced into academic discourse by Abraham Moles (1920-1992), a distinguished philosopher, psychologist, and epistemologist, in the year 1982 [8]. The ensuing decades witnessed the burgeoning development of this field, with its formal consolidation as a well-established academic discipline occurring during the 1990s [9] [10] [11]. This evolution culminated in the establishment of the Japan Society of Island Studies (JSIS) in 1998, underscoring the growing significance and dedicated pursuit of island studies within the scholarly domain [12].

Within the domain of *nissology*, a prominent area of inquiry revolves around the conceptualization of the term "island." Notably, Hiroshi Kakazu, an esteemed honorary president of the Japan Society of Island Studies (JSIS), offers a critical examination of the conventional island archetype. He posits that the prevailing perception of insularity, often rooted in an oceanic, diminutive, and colonial legacy, while tethered to the United Nations Convention on the Law of the Sea's narrow definition of an island for purposes of territorial sea and contiguous zone claims [13], represents a limited framework. To fully apprehend the unique attributes of each island, Kakazu advocates for an inter- and trans-disciplinary approach within the realm of *nissology*, emphasizing the necessity for a holistic and multifaceted perspective [1].

The emergence of *ecomusicology* finds its origins in the paradigm of *ecocriticism*, which establishes a profound connection between human creative endeavors and the intricate web of Earth's processes. *Ecomusicology*, as a discipline, has been formulated to adopt an interdisci-

plinary approach to the examination of music and sound within the broader framework of cultural and environmental contexts. This approach encompasses a rich tapestry of diverse and inclusive perspectives, notably embracing Traditional/Indigenous Ecological Knowledge. In essence, ecomusicology seeks to extend its purview beyond human realms and ventures into the realm of ecological sustainability. This extension encompasses not only the rich array of sonic communications found in the world of plants and animals but also underscores the significance of sound, both originating from and resonating within the Earth itself. This fundamental engagement with Earth's acoustic tapestry serves as a cornerstone in the creative and performative arts, underlining the profound influence of the acoustic environment on artistic expressions and performances [14].

In their recent publication on ecomusicology, Edwards and Konishi (2023) [15] undertake an examination of the economic and ecological challenges surrounding the *kuruchi* tree, which serves as a vital material for the construction of Okinawan musical instruments, particularly the *sanshin*, a three-stringed lute. This investigation is conducted within the framework of a Socio-Ecological System (SES). Additionally, Dirksen integrates the concept of the Socio-Ecological System with Indigenous Ecological Knowledge, specifically drawing from the sociocultural local wisdom of Haitian Vodou. In this context, songs dedicated to the spirit Èzili play a significant role in conveying the intricate relationship between the Earth and humanity. For instance, they reflect the impact on the environment when Èzili is ailing, resulting in drought conditions and the scorching of the land [16].

Philip Hayward introduced the concept of "*aquapelago/aquapelagic*" assemblages, denoting the holistic understanding of the intermediate aquatic spaces that bridge the gap between distinct island groups. This concept serves as a comprehensive framework for analyzing the intricate interplay between marine and terrestrial domains, serving as the connective tissue between the realms of sea and land [17] [18]. Furthermore, Hayward introduced the notion of the "*aquapelagic imaginary*," with the mermaid symbolizing this concept. The mermaid icon holds a special place as it reflects and transcends conventional perceptions of the boundaries defining human presence and experiences within aquatic environments [19].

Discussion

1. Images of Talking Fishes in Japan and Okinawa

During this session, a diverse array of Japanese and Okinawan symbols related to the concept of *aquapelagic* imagination are introduced. Prior to the year 1932, the renowned Japanese folklorist Kunio Yanagida (1875-1962) undertook the collection of folklore centered on "*Mono Iu Sakana*," or talking fishes. These talking fishes encompassed soft-shelled turtles, eels, catfish, and other aquatic creatures residing in various aquatic settings such as wells, marshes, ponds, deep pools, or the basins of waterfalls [20]. It is particularly noteworthy that, akin to the mermaid, the essence of these beings was perceived as intermediaries, serving as connectors between the realms of sea and land, saltwater and freshwater, as well as the inner and outer zones of the human habitat.

Among the younger generation in Japan, who may not be familiar with the concept of talking fish, there exists a popular supernatural figure known as *Amabie* (see Figure 1). *Amabie* is a mermaid-like entity that took form in woodblock prints dating back to 1846, hailing from the oceanic region of Higo in Kumamoto Prefecture. This supernatural being conveyed a forewarning to the populace, predicting the prevalence of a disease for the following six years. It further instructed people to create an image of themselves and share it with others as a protective measure. Notably, during the period of the COVID-19 pandemic, *Amabie* gained recognition as a savior figure and became widely disseminated through Social Network Systems. The Ministry of Health and Welfare even incorporated it as a central character in their public health

campaign [21] [22]. In this manner, *Amabie* is poised to serve as a conduit for the transmission of collective historical experiences and memories associated with the pandemic.



Figure 1. Figure of *Amabie*, a creature that appeared in the sea of Higo [Photograph courtesy of the Main Library, Kyoto University]

2. The Okinawan Talking Fish and Traditional/Indigenous Ecological Knowledge

Yanagida also introduces the Okinawan folklore [20]. The one is a folklore of Misato Village (a part of present Okinawa City). The story is as follows;

A man who went to the sea to make salt caught a fish. It said, “I wonder if a wave, two, or three waves will arrive.” He thought he would release it but gave it to the other man. When he cooked and started eating it, a large tsunami arrived to carry away the neighboring people and farm animals.

Comparable folklore persists in numerous remote islands within the Miyako and Yaeyama Islands of the Ryukyu archipelago. These narratives transcend the realm of mere fairy tales; instead, they embody collective recollections, firsthand experiences, and valuable lessons derived from a pivotal historical event—the devastating tsunami that transpired in the southern Ryukyu arc at approximately 8 a.m. on April 24, 1771 (see Figure 2). While the earthquake responsible for this catastrophe is documented in *Kyūyō*, the official historical records of the Ryukyu Kingdom, it is worth noting that the tsunami deposits might have resulted from more intense seismic activity. The recurrent presence of paleo evidence lends support to a tectonic source model rooted in the dynamics of the plate boundary [23].



Figure 2. *Tsunami Iwa* [rocks] at Higashi henna misaki, Miyako Island
[Photographed by Konishi, Junko]

The transmission of these folkloric accounts is notably prevalent in regions directly affected by the historical tsunami event [24]. For instance, in Ishigaki City, on April 24, 2021, a solemn commemoration was conducted in honor of the 250th anniversary of the tsunami, serving as an occasion to mourn the deceased and uphold the continuity of collective memories [25]. According to oral traditions, the aftermath of a substantial earthquake was accompanied by a resounding noise emanating from the sea. Katsuyoshi Kohama is renowned for preserving the ancestral testimonies of survivors who had gathered around a prominent landmark known as *Takosarā Ishi*. These accounts provide vivid descriptions of the tsunami's impact. Furthermore, historical records suggest that surveyors from the Satsuma domain might have noted the inundation of saltwater affecting trees and grasslands, serving as a means to gauge the heights of the tsunami waves [26]. This historical and environmental landscape evokes reminiscences of Traditional and Indigenous Ecological Knowledge, underscoring the profound connection between human experiences and the natural world.

The second Okinawan talking fish introduced by Yanagida is named *Yonatama* that had a human face. *Yonatama* had caught by a man in a remote island of Miyako Islands. The story is as follows;

At night, the man hung and smoked *Yonatama* when a neighboring child cried and begged his mother to leave for Irabu Village [Island]. The mother asked the reason *Yonatama*, and then it replied, "I will call waves to go back to the sea." The mother was frightened and soon escaped to Irabu Village [Island] with her child. The next morning, when they returned, Shimoji village [Island] had been completely washed out by the tsunami.

According to local narratives, there are two interconnected ponds known as *Tōri Ike* (refer to Figure 3 and Figure 4), and these ponds are linked to the sea via an underwater cave [27]. It is within this context that a legend recounts the story of a man whose dwelling was purportedly swept away as a form of retribution from *Yonatama* [20]. The association between the collective memory of the catastrophic tsunami event and the enigmatic geographical characteristics of these interconnected ponds, characterized by their stunning azure saltwater and the presence of coastal vegetation, potentially contributed to the origination and dissemination of this narrative.



Figure 3. *Tōri Ike* (the southwest side) of Shimoji Island
[Photographed by Konishi, Junko]



Figure 4. Aerial Photography *Tōri Ike* of Shimoji Island
[Source: Reference [28]]

3. Traditional/Folk Ecological Knowledge of Water on Miyako Island

A number of religious services are held in Miyakojima City [29]. Among them, annual religious services for the god of water are held in 2 districts at least.

One of the localities bearing significant historical resonance with the devastating tsunami of 1771 is the Miyaguni district. In this region, prominent annual religious ceremonies are conducted to honor the deity associated with water, notably *rju:gu-nigai*, *stsi-nigai*, and *ka:-nigai*. The *rju:gu-nigai* ritual, which translates to "praying for the dragon's palace," involves the participation of five female priests and one male priest. Among these, one of the female priests is dedicated to *midzi-nu-nusi*, who is revered as the god of water. The culmination of this

ceremony features a traditional folk dance accompanied by *kuicha*: songs. Conversely, *stsi-nigai*, which can be understood as a "seasonal prayer for rejuvenation through the consumption of fresh water from a spring, *ana-ga*:" entails a group of female participants engaging in dance and song. This ritual extends over two days and is centered around the theme of rejuvenation through the consumption of pristine spring water. Finally, *ka:-nigai*, a distinctive ceremony, is dedicated to offering prayers for the well-being and sustenance of local wells. These annual religious observances serve as integral elements in the preservation and expression of cultural and ecological knowledge associated with water and its significance within the community.

In the Fukuzato district within the Gusukube section, there exist significant religious ceremonies aimed at venerating the deity *ru:gu-nu-kam*, symbolizing the god of the dragon's palace, with a specific focus on invoking abundant catches. Additionally, another notable ritual known as *ka:-bu:i*, which translates to "celebration of wells," is observed to express gratitude to the water deities. These religious services incorporate a diverse range of sacred sites, notably *midzi-nu-nusi ru:gu*, which is associated with the gods residing in subterranean or underwater realms, including the mystical dragon's palace. These ceremonies constitute an essential aspect of the community's cultural and spiritual practices, attesting to the enduring reverence for water and its divine manifestations [30].

It is remarkable that, the gods of the underground are believed in Fukuzato where one of the underground dams and the dam museum are located. An underground dam is a wall and facilities constructed underground to prevent underground freshwater draining the sea so that it can be put to human use. The underground water vein was discovered and excavated with the boring machine to share the water with human beings. However, local people continue to feel *ru:gu-nu-kam* with awe and reverence. The underground is a crossroad between the traditional/folk ecological knowledge and the social infrastructure of Miyako Island.

4. The Underground Dams In Miyako Island

Miyako Island is characterized by a surface soil layer predominantly composed of limestone. An exceptional feature of this geological environment is that nearly 40% of the rainfall is absorbed by this stratum, in stark contrast to the national average in Japan, which stands at approximately 4.5%. In response to the need to harness the considerable portion of rainwater that reaches the impermeable underground layer and eventually flows into the sea. To get water for living, agriculture, and livestock, women and children had to go down dangerous steps toward spring water coming out of limestone near the seashore and carry water on their heads repeatedly. Droughts damaged the sugarcane field again and again. A concerted effort was initiated in the early 1980s to construct underground dams. These infrastructural endeavors represent a proactive response to the island's unique hydrogeological conditions, seeking to capture and utilize a substantial proportion of the rainwater, thereby enhancing the island's water resource management and sustainability [31].

Yoshihiro Kuronuma, a participant in the construction of the Sunagawa Dam within the Gusukube section, which was undertaken in 1994, encountered a remarkable event during the project. The local community's leader expressed concerns that the gods were displeased with the noise and vibrations generated by the construction activities. This encounter left Kuronuma apprehensive about the divine presence, underscoring the enduring tradition of builders, even with access to the most advanced technologies, seeking the blessings and protection of the gods. In response to this situation, Kuronuma, driven by respect for the local beliefs and customs, embarked on a visit to sacred sites, accompanied by a prayer ceremony led by a *yuta*, a traditional spiritual practitioner. Together with the community's leader, they convened to conduct rituals aimed at appeasing the concerned deity. In this collaborative effort involving the creators of the vital social infrastructure, the community members, and the spiritual practitioners, they collectively sought the benevolence of the god *midzi-nu-nusi*, who is believed to

dwell underground [32]. This collaboration illustrates the harmonious coexistence of traditional beliefs and contemporary infrastructure development, reflecting a shared commitment to securing the precious resource of underground water associated with the deity.

5. Ecological Knowledge and Practices for The Sustainable Water Resource

The implementation of the underground dams and the associated water supply system on Miyako Island resulted in a notable augmentation of sugar cane production. Furthermore, it facilitated a transition toward more economically advantageous agricultural products, particularly the cultivation of mangoes. This shift in agricultural practices was instrumental in diversifying and bolstering the island's agricultural output. As part of an overarching strategy to promote environmental sustainability and ecological responsibility, Miyakojima City made a significant declaration in 2008, designating itself as an "Eco-Island." This declaration signified a commitment to embracing environmentally conscious practices and policies in various aspects of island life. Within the context of these developments, the underground dams and the associated museum located in Fukuzato district emerged as focal points of ecotourism. Visitors were drawn to these sites, which offered a unique opportunity to witness sustainable water management practices, gain insights into the island's ecological initiatives, and engage in educational and recreational activities centered around environmental preservation. These efforts underscore the island's proactive approach to ecological tourism and its dedication to harmonizing economic development with environmental sustainability.

Nonetheless, the pursuit of both economic development and environmental conservation presents a complex challenge, requiring a nuanced equilibrium. Within this context, a range of issues has emerged, including water pollution resulting from agricultural activities, the livestock industry, and illicit disposal of hazardous waste. These issues warrant immediate and effective mitigation strategies to safeguard the natural environment. Significant infrastructural advancements, such as the inauguration of the Irabu Ōhashi bridge in 2015, facilitating the connection between Miyako and Irabu Islands, and the establishment of the Shimoji Island airport in 2019, have catalyzed a substantial increase in tourist arrivals, including international visitors. This upsurge in tourism has, in turn, escalated the demand for water resources by resort hotels, golf courses, and commercial establishments. Consequently, a reassessment of the water distribution infrastructure, tailored to meet the diverse and evolving needs of these sectors, becomes paramount in the pursuit of a sustainable development paradigm. Balancing the imperative for economic growth and the preservation of the island's fragile ecosystem is an intricate undertaking that necessitates the conscientious management of resources and the implementation of ecologically sound practices. Achieving this balance is pivotal to the long-term prosperity and ecological integrity of Miyako Island [32].

Indeed, the present juncture calls for a conscientious consideration of the admonitions originating from the voices of ancestors, supernatural entities, and deities. Notably, the work of Shuzen Hokama, an esteemed researcher who dedicated his efforts to the study of the Miyako Islands from 1964 to 1973, resulted in a classification of the chants and songs associated with divine reverence into three distinct categories. These categories encompass 1) chants that are specifically devoted to venerating the gods, 2) epics or narratives that recount the various facets of daily life, and 3) songs that form an integral part of the island's cultural and spiritual tapestry. Such categorization serves as a valuable framework for comprehending the multifaceted nature of the island's indigenous beliefs and traditions. It underscores the importance of acknowledging and preserving this rich cultural heritage [33].

Within the Karimata district of the Taira section, situated in Miyakojima City, there exists a sacred chant known as "*Kaيماتاужаnnu ni:ri*" that has been passed down through

successive generations. This chant carries profound significance in the context of ancestral veneration within the Karimata region. Notably, the term "*ni:ri*," also known as "*ni:ra:gu*," shares etymological roots with the broader concept of "*niraikanai*," signifying a celestial paradise believed to exist above the seas, a belief found in the broader Okinawan cultural milieu.

The chant mentioned above is of considerable scope, consisting of five distinct sections, each of which recounts genuine historical narratives pertaining to the village or district. The fourth section of the chant merits particular attention due to its detailed portrayal of water supply practices during the leadership of the male chief, Uggusiku. In the opening verses, the chief entrusted a child with the task of fetching water and providing a ladle for personal purification, underlining the paramount importance of hygiene. Additionally, the chief encouraged the community to engage in good excavation, recognizing the pivotal role of this endeavor in ensuring a dependable water source. This collaborative effort bore fruit as the community successfully gained access to water that had previously inundated their area, marking a significant achievement. In celebration of this accomplishment, a customary ritual involving the consumption of sake was conducted, signifying a ceremonial tribute to commemorate the productive, well-digging initiative and emphasizing the cultural importance attributed to water management and the associated traditions [33].

While the original rendition of "*ni:ri*" may have regrettably fallen into obscurity, a truncated iteration of the fourth section, known as a "rain dance" within the repertoire of *kuicha*: [*kuidza*] (see Figure 5), has endured. This rain dance, encapsulated within the artistic tradition of *kuicha*:, serves as a remarkable continuation of the cultural legacy, maintaining a connection between the realm of water, the deities, and ancestral heritage. The revitalization of this watery connection, bridging the domains of gods and ancestors through the medium of performing arts, is of profound significance. This revival holds relevance even within the contemporary context, representing an artistic expression that preserves the rich cultural heritage and spiritual traditions of the region. It is a testament to the enduring cultural and spiritual significance of water in the collective memory and artistic expression of the community.



Figure 5. *Kuicha*: at the 21st *Kuicha*: Festival in Miyako Island (5th November, 2022)
[Dedicated by Mayako Koja]

Conclusion

Watery spaces such as the sea and ocean surrounding an island, the intermediate between sea and land, and salty and fresh water on the surface and underground of Earth provide helpful, productive, and imaginary resources for us. Scientific research on ecosystems there is still on the way. However, the Traditional Ecological Knowledge has been passed down from generation to generation through folklore, arts, and performing arts and remains at the historical sites. The interdisciplinary research helps domestic and international artists and performers transform Traditional Ecological Knowledge into art forms that will be admitted to be brand-new common knowledge for Earth's sustainable future.

One video presented by a media art student at Okinawa Prefectural University of Art illustrates the Okinawan bad spirit called *majimun*. The work includes images of Miyako Island that I discussed. The other is a dance choreographed and performed by Professor Izumi Higa on the Master of Hatoma Island to represent the spirit of the small and isolated island (see [Figure 6](#)). I hope you enjoy our presentations. This is the end of my presentation. Thank you very much for your attention.



Figure 6. A *Hatoma no shu* by Izumi Higa
[Dedicated by Izumi Higa]

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