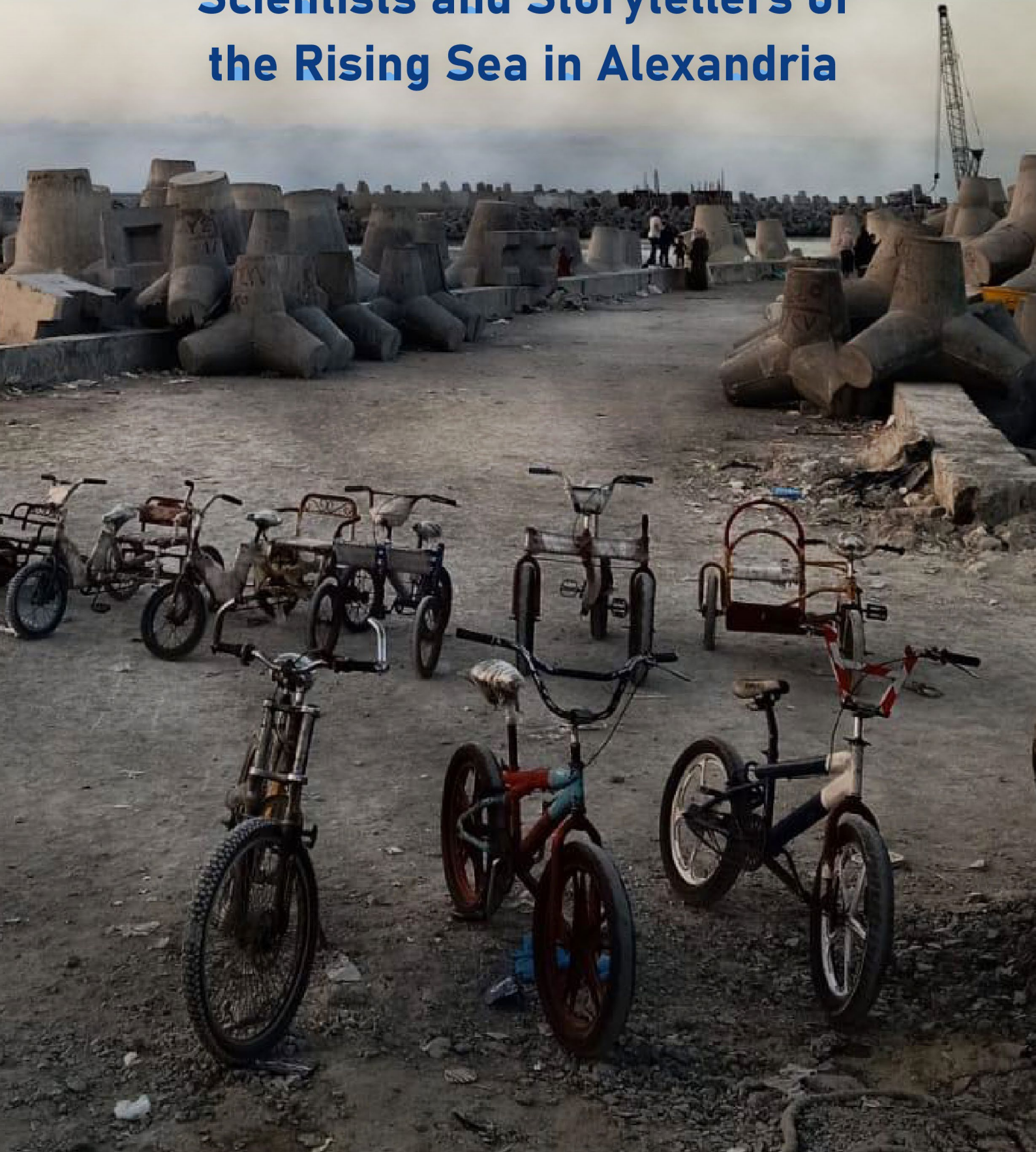


Themselves the Verge of Seas to be: Scientists and Storytellers of the Rising Sea in Alexandria



Themselves the Verge of Seas to be:
Scientists and Storytellers of the Rising Sea in Alexandria

Soha Mohsen

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Introduction

According to the United Nations' best-case scenario, at least 30% of the city of Alexandria will be flooded and over a quarter of the population will have to be rehoused by the year 2050. As reported by the UN Climate Panel (IPCC) in their 6th assessment report, the rising sea level of the Mediterranean due to climate change will have dramatic implications because its deep waters will warm more than all the oceans. This suspended futurity of Egypt's second biggest metropole and its most historically significant port city intimately intersects with the overall uncertainty and instability lived and experienced by Egyptian subjects in the complicated and prolonged aftermath of the 25 January 2011 revolution, whereby the discourse of "sinking" operates not only on the level of city's materiality but also on the level of a collapsing national economy. The shore that is disappearing and being lost to the Alexandrian public- due to the rapid and aggressive privatization by the state- is the same shore that is witness to the rising sea levels due to global warming. Taking this paradox between the appearance/ disappearance of the sea-and-land scopes, this project seeks to understand how the rising sea becomes the site of contested epistemologies, imaginations and representations in Alexandria, in relation to Egyptian politics, cultural production and scientific discourse.

Drawing on ethnographic fieldwork and archival research, this paper begins by introducing the context of my study, elaborating on Alexandria's status of "endangerment" as demonstrated and discussed by local and national oceanographic and marine scientists. After that it moves on to share a brief reflection based on ethnographic interviews and archival research, exploring the history of the oceanographic sciences in Egypt (specifically along Egyptian Mediterranean), namely the establishment of the National Institute for Oceanography and Fisheries (NIOF) as well as the Department of

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Oceanography at the Faculty of Sciences in Alexandria University. I aim to understand the complex subjectivity that oceanographers and marine scientists embody in endangered coastal cities, and the ways in which their personal and professional encounters with the sea shape and become shaped by the larger political, economic and cultural atmospheres of Alexandria. Lastly, the paper ends with a discussion of the nature of knowledge making about the sea-level rise (or the absence thereof) that unfold in relation to, about, and in proximity to the sea.

Note on methods used:

The vignettes presented in this paper are based on fieldwork over 9 months from September 2023 to May 2024. During this period of ethnographic fieldwork, I deployed several ethnographic methods simultaneously, such as: archival research, semi-structured interviews, and participant observation. The data/ findings in this paper are based on in-depth, semi-structured interviews with members from the National Institute of Oceanography and Fisheries and the Department of Oceanography at the Faculty of Sciences, Alexandria University, combined with my experience as a Visiting Researcher at the Human and the City Center for Social Research (HCSR) in Alexandria during the period between November 2023 and May 2024. I am tremendously grateful to HCSR team for welcoming me into their space and for continuing to provide me with profound insights about the urban, sociocultural and maritime histories of Alexandria.

Context:

The IPCC AR6 report advises that climate change will exacerbate storm surges and coastal flooding in the eastern Mediterranean basin in the upcoming decades. The above is particularly critical for low-lying arid cities in developing nations like Alexandria. Alexandria projects a high-end rate of sea-level rise ranging between 6.4 and 7.8 mm per year (IPCC 2021). The sea level is expected to rise between 0.2 m and 0.25 m at Alexandria by 2050, threatening fisheries on the Mediterranean Sea coast in Egypt and its low-lying coastal tourist areas (World Bank Group, 2014, p. 129). As the report indicates; “Egypt, Libya, Morocco and Tunisia are the most exposed countries to sea-level rise (World Bank, 2014). Among MENA countries, Egypt is particularly exposed with several coastal cities at risk of inundation (Frihy *et al.* 2010; Solyman and Abdel Monem, 2020; Elshinnawy and Almaliki 2021).”

I started my fieldwork journey in Alexandria in the windy fall season of 2023, with certain expectations about the anxious atmosphere of a city that is on the brink of “sinking”. “Being there” (Favret-Saada 1990; Giordano 2023) among different local communities of residents, scientists, researchers and cultural producers, introduced me to a different, even more nuanced reality. Living in Alexandria, working among and with local communities, I came to contact with a scene of loss that, surprisingly, is not on-the-way but already here, acutely present and powerful. Whether Alexandria is going to sink, partially or completely, or not at all, is an issue discussed and ‘assessed’ by numerous scholars and scientists, and investigated in multiple past and ongoing research projects. Consulting these reports, documents, announcements and studies while also living in the city, I came to realize that the notion of *sinking* quite poetically and with precision captures much of the present condition in Alexandria. Echoing Stefan Helmreich’s remarks on seawater as a theory machine, I suggest that seawater has become an explicit figure for anthropological and social theorizing, “especially in the age of globalization, which is so often described in terms of currents, flows, and circulation”. I also join Helmreich in his critical take on the generativity of watery metaphors to our modes of social and cultural analysis. Similar to him, I am interested in employing sea-water as a theoretical and an explanatory tool (theory machine) while at the same time as a phenomenon to be examined in and of itself (a thing in the world) (Helmreich 2011).

“An estimated 45 percent of the population of Alexandria currently lives on land situated below sea level” (Michel 2010). In Alexandria, for a scenario involving a sea level rise of 0.5 meters over the next century, about 30% of the city would be lost to inundation and saltwater intrusion if no countermeasures were taken (ElRaey 2010). How is sea level rise encountered, known, and conceptualized in Alexandria? How does it seep into the lived experience of the city? Where does knowledge about the sea emerge, and how does expert knowledge about the sea come into being? Lastly, how are the policies and interventions pertaining to coastal management in response to sea level rise are made by local scientific communities?

Alexandria the “Endangered”

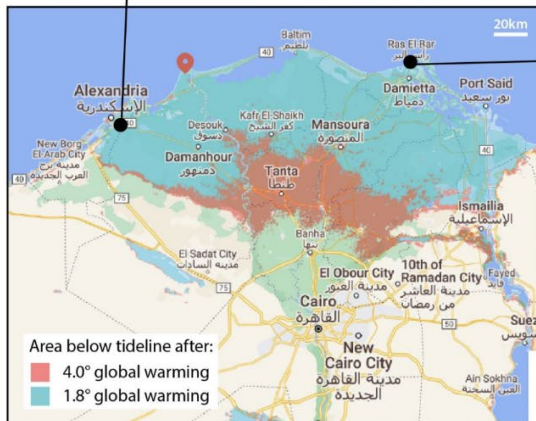
As noted by Abou-Mahmoud in his 2021 study in *The Egyptian Journal of Aquatic Research*, Egypt’s Mediterranean coastal zone is susceptible to submergence risk due to its relatively low elevation (El Raey *et al.* 2005). A problem is further deepened by numerous factors such as the high rate of population growth, land subsidence in the Delta region, excessive erosion rates, saltwater intrusion, soil salinization, land use interference, ecosystem pollution and degradation, and lack of appropriate institutional management systems. A recent infographic published by Africa Center for Strategic Studies (2022) shows that coastal cities not only face the direct threat from rising seawater and storm surges, but they also face the unseen threat of groundwater rising, turning urban areas into wetlands. The report adds that for Egypt, only a 0.5- to 1-meter sea level rise will result in the coastline shifting inland by several kilometers, submerging a large area of the Nile Delta.

“The problem with SLR is not just rising sea levels”, anthropologist Ryan reminds us, “but how they interact with storm surges, hurricanes, and other factors to produce greater risk and vulnerability.” (2023: 24). Alexandria is one of the Mediterranean UNESCO World Heritage sites at risk from coastal flooding and erosion due to sea-level rise (Hemeda 2021). According to UNESCO experts, the probability of a tsunami wave exceeding 1 meter in the Mediterranean in the next 30 years is close to 100%.¹ On 1 November 2021, and during the Climate Summit known as Conference of Parties (COP) 26, UK Prime Minister Boris Johnson announced in quite a theatrical and ominous tone, the looming disappearance of Alexandria among other coastal cities. Below is a quote from his arrestive speech given from behind a podium in Glasgow, Scotland:

1- <https://www.unesco.org/en/articles/tsunami-resilience-unesco-will-train-100-risk-coastal-communities-2030>

Cities Most at Risk

Alexandria's coastline is 8 meters below sea level in places



Map sources: Google Earth, Climate Central

Nile Delta, Egypt

Population: 50 million

Alexandria:

Minimum elevation: -8 m

Maximum elevation: 52 m

Average elevation: 0 m



Ras El-Bar resort city and dense surrounding settlements



Two degrees more, and we jeopardize the food supply for hundreds of millions of people as crops, wither locusts swarm. Three degrees and you can add more wildfires and cyclones, twice as many, five times as many droughts, and 36 times as many heat waves. Four degrees, and we say goodbye to whole cities. Miami, Alexandria, Shanghai, all lost beneath the waves. And the longer we fail to act, the worse it gets and the higher the price when we are eventually forced, by catastrophe, to act. Because humanity has long since run down the clock on climate change. It's one minute to midnight on that doomsday clock, and we need to act now. (Johnson 2021)

Johnson's speech stimulated a chain reaction of institutional and public attention, with endless amounts of articles, media reports, TV and radio talk shows, as well as social media posts came out reacting to and responding one way to another to the chilling statement made on Alexandria. The speech definitely engendered a collective atmosphere of intrigue and captivation, between fear, perplexity, uncertainty, or even aversion and distrust. You could find young content creators doing street interviews with Alexandrians asking; what would you do when "a" Tsunami hits? Responses

also came from the Egyptian scientific community of oceanographers, coastal engineers, geographers and marine scientists, who were mostly driven by a sense of urgency and responsibility to “debunk” the inaccuracies and exaggerations that came with this speech. To them, it was important first of all, to contain the public atmosphere of apprehension. Their efforts at putting together and publishing scientific papers and reports as well as showing up for interviews on different media platforms were definitely important, but their approach seemed to stem from an anxiety around the possibility that people might actually believe Johnson’s warnings, and consequently mass scale fear might spread, uncontrollably. The stories that scientists wanted to respond with are ones that should bring assurance and peace upon the Egyptians’ hearts, it should demonstrate– not that everything is going to be alright– but that the scientists-at-home have already grappled with the unfolding conditions of the local environment, it is not Johnson perhaps that should incite fear in you, here is a chance for you to not ignore us, to listen to us.

Soon, another November will be upon us, and with it another COP; this time COP 29 which will take place in Baku Azerbaijan. Alexandria and other coastal cities’ increasing “endangerment” will again be discussed, mobilized, and addressed. Speculations about the anticipated sinking of Alexandria has remained present but vague, well-founded but largely mystified and muddled. Re-visiting Johnson’s speech, a deliberate ambiguity in his staged talk becomes all the more perplexing, for example; who are the “we” that are both the addressed and the addressee of this speech? Who are the ‘we’ meant to participate in that a-priori farewell to Alexandria, Shanghai, and Miami? Greenhouse gases indeed trap heat in Earth’s atmosphere, unquestionably altering weather patterns and disrupting all sorts of ecosystems around the globe. But also equally true is the fact that greenhouse gas emission is a phenomenon of unequal, unjust, and disproportionate measures across the different continents of this world. While its impacts are shared, the contributions to the issue remain deeply disparate, with nations like the US and China accounting for 14% and 30% of global fossil fuel emissions respectively. Egypt’s contributions, for example, represent only 0.73% of global emissions². Such particulars do not make it to Johnson’s utterances. Who is the “we” then that is being addressed? Who is Alexandria being lost to? Who is being condemned and who is being warned? Alexandria’s arrival into this speech certainly signifies a moment where a different kind of attention and deliberation was born. A month after Johnson’s speech, local news portal Ahram Online published an article about the Senate’s meeting

2- [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/738187/EPRS_BRI\(2022\)738187_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/738187/EPRS_BRI(2022)738187_EN.pdf)

(Egypt's consultative upper house) that was held upon the request of a senator and the support of 25 others and came together on the 20th of December 2021. According to the article, members “devoted a full session to discussing the impact of climate change on Alexandria and the country's Mediterranean coast following a warning from British Prime Minister Boris Johnson that Alexandria could disappear.”³

While Johnson's statement did not essentially mark a breakpoint in the temporality of Alexandria's endangerment, it enacted a ripple of effects among different segments of the local community, subtle sensibilities and affects that demand special attention and attunement. I wanted to think about and through the force of this moment, not as a prophecy or an apocalyptic oracle, but for how it played itself out as an event that resonated in scenes and forms of sociality and politics. Following Kathleen Stewart's methodological approach, my fieldwork took as its first step “the open question of what counts as an event, a movement, an impact, a reason to react”. How this speech animated different needs to react leads to question about the politics to this difference in itself; “the difference of danger, the difference of habit and dull routine, the difference of everything that matters.” (Stewart 2007: 16). While there is a considerable amount of literature that elaborates on the scientific facts, debates, and future impacts of sea level rise globally (see Frederikse *et al.* 2020; Griggs and Reguero 2021; Hauer *et al.* 2020; Nerem *et al.* 2018), local contexts of “endangered” coastal cities present us with the different realities and lived experiences of a phenomenon that might appear singular but instead is far from uniform, with multiple temporalities, implications, historical and future cultures, references and imaginations. The section below is based on archival research.

Examining the history of Alexandria's sea and climatic hazards grant us the opportunity to cultivate a more nuanced conception of “endangerment” beyond the immediate political, economic and decision-making cycles “within which much of contemporary life operates and upon which public policy is so often dependent” (*Ibid*). Alexandria's vulnerability to different kinds of flooding (sea and rain flooding) is both a historical fact and also a symptom of its ongoing conditions. Since the scope of this paper is limited to sea-flooding, in order to examine the phenomenon more deeply I am confronted with a question of position, where do we position ourselves, as scholars and anthropologists, if we are to think about and through sea-level rise?

3- <https://english.ahram.org.eg/News/448846.aspx>

Anthropological approaches to sea-level rise are mostly situated within the broader literature on climate change (Peterson and Broad 2008; Brown and Peters 2019; Crate 2011; Crate and Nuttall 2016; Dove 2013; Riley and Brulle 2013; Fiske *et al.* 2014; Roncoli *et al.* 2009; Sayre 2012). In these framings, climate change points to uneven distributions of threatening weather and sea borne effects across the globe (Nixon 2011; Chakrabarty 2009). As argued by Anderson (2023), sea level rise poses methodological challenges, as a case that cannot be simply understood from a “resilience” framework (Crate 2011), nor can it be approached as a problem of adaptation and technical interventions (Anderson 2023). The rising sea is certainly a problem that demands technical management but it is also a “deeply human problem” (*Ibid:* 23) entangled with competing perceptions and imaginaries of nature, conflicting ideologies of adaptation and entrenched inequalities (Gesing 2017; Malm 2013; Marino 2015). Ethnographies dealing with attempts at managing, predicting and assessing the issue of sea level rise have focused on how vulnerability is shaped over time through histories of colonial and historical forms of governance (Marino 2015), entailing ideas about relocating people (Kirsch 2020; Koslov 2016; Lazrus 2016; Simms 2017), or the excessive and indefinite building of seawalls and coastal protection structures (Griggs 2005; Malm 2013; Gesing 2017), whereby these proposals are more often than not guided not by the protection and support of citizens and communities, but instead by the profit-making interests of governments, corporations and/ or real estate developers (Gray 2014; Yarina 2018). A key point that resonates across these important contributions is that examining sea level rise must take into account the broader historical, social, political, economic and cultural processes and perceptions that shape how local coastal communities experience, conceptualize and respond to the changing sea levels. Overall, this body of literature points to the fact that there are “no easy solutions” to the problem of sea level rise (Fagan 2013), and that no singular framework will be sufficient to engage the full range of meanings and stakes that constitute the phenomenon differently in different contexts.

Exploring and learning from previous ethnographic approaches to sea-level rise, I deeply pondered upon the question of what position I wish to adopt vis-a-vis the rising sea. While I cultivated a profound inspiration by and admiration of seawall ethnographies, my fieldwork experiences in Alexandria steered my attention to the sea itself, and the ways in which it dominates not only the physical but also the social and cultural lives of the city. In my work, I aim to foreground the sea’s instability as it oscillates between being an object of management, knowledge production, and prediction but also

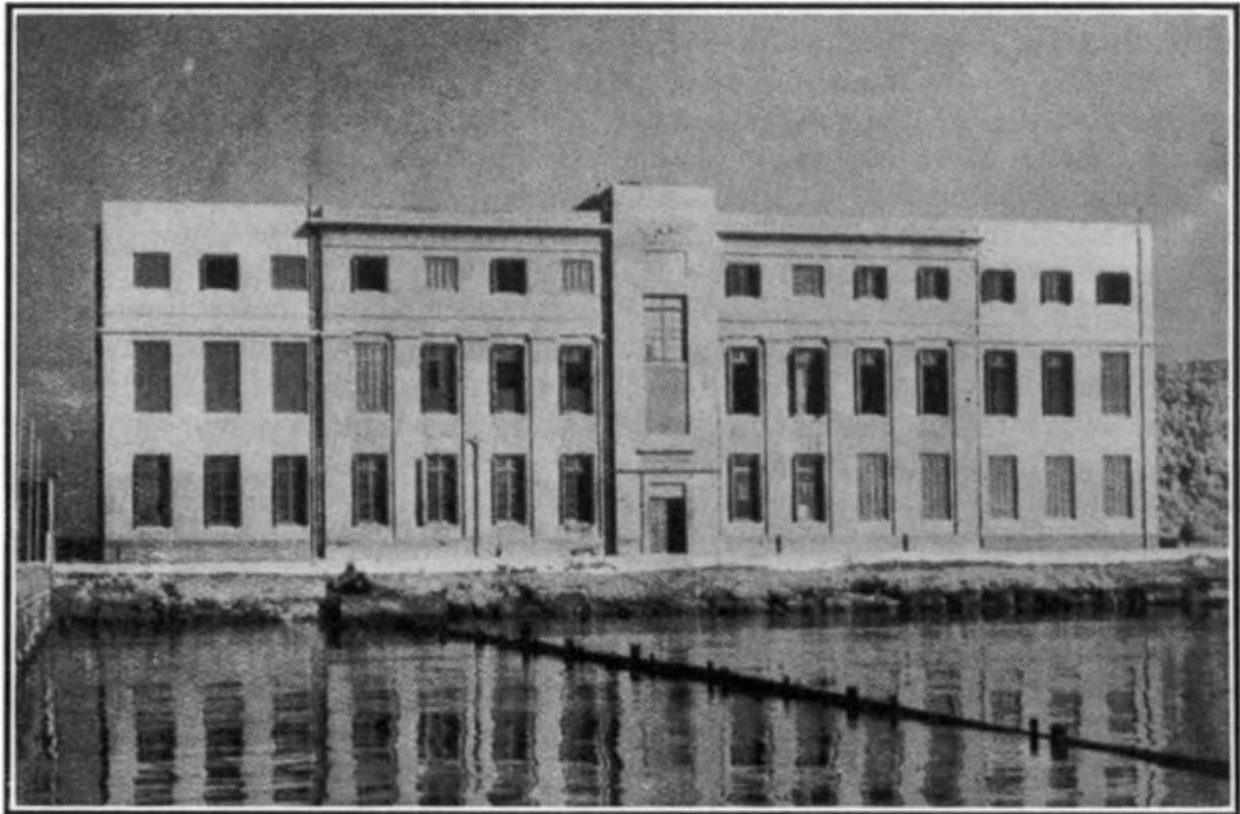
something that perpetually exceeds capturing and resists these attempts of total and utter knowability. It is this instability that has over time enabled the becoming of land as such, and that has engendered a need for the existence of tools and technologies which has the capacity to measure, assess and predict its changes. In the following section, I aim to trace the development of the use of modern 'Science in the exploration and evaluation of the sea's unpredictability and the modes of 'knowing' that these technologies allowed and promised.

Early Oceanographic Sciences in Egypt

Humans have for centuries, lived by and sailed through the oceans and seas, exploring their depths and describing their profundity; an environment that is "inextricably connected to, and influenced by, people" and "known through imagination as well as through direct experience" (Rozwadowski 2018). As the historian of science scholar Antony Adler has argued; "The opacity and mirroring quality of the ocean, as well as its abundance of obscure life make it an idea screen for human projections of fear and hope" (Adler 2019: 2). The conception of the modern discipline of oceanography fits into this narrative, where the fate of humanity and the planet was known to be unquestionably intertwined with that of the oceans, and therefore it became clear to politicians, along with scientists and publics that marine sciences were integral to any imagination of the future. While it would be easy to assume that we know what oceanographic sciences are, and what those scientists do, it is far more important to pay attention to how they explain and conceptualize not only the causes and concerns that animate their work, but also the imaginations and imageries that undergird their approach to the sea.

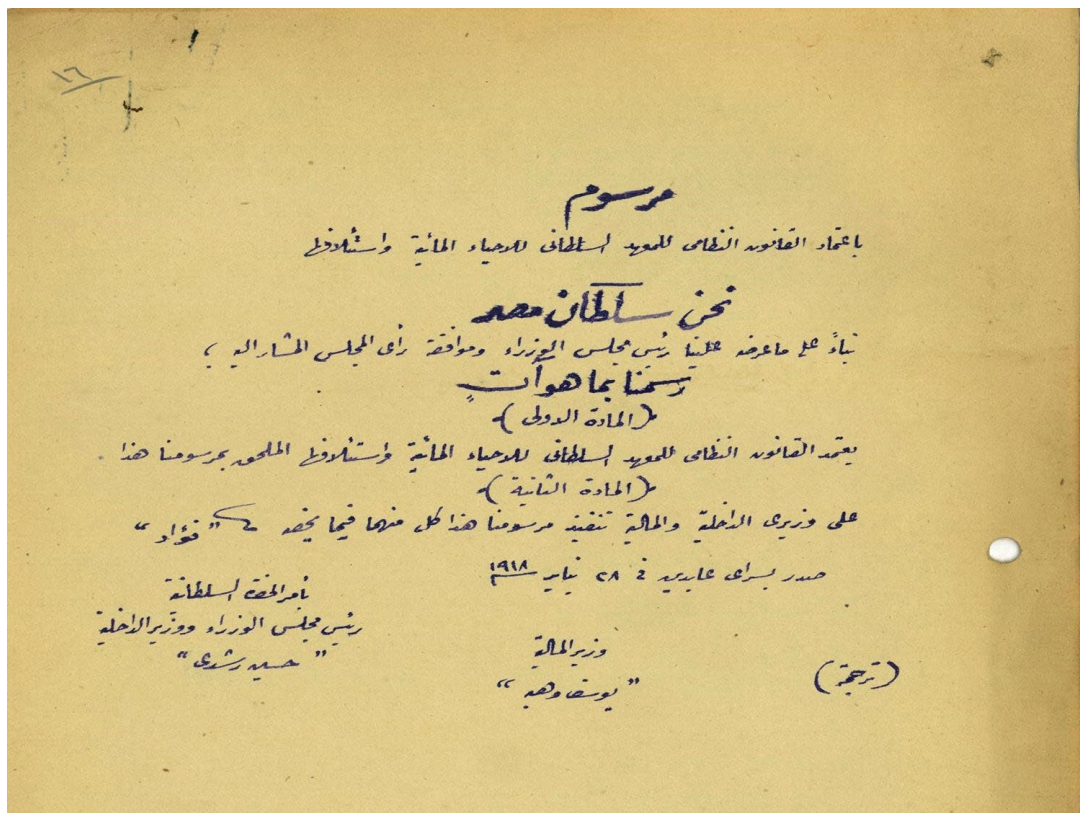
The establishment of oceanographic sciences in Egypt as a distinct academic discipline can be traced back to the early 20th century, specifically, during the reign of Sultan-turned-King Fuad I. (1922-1928), interest in marine life became more prominent in Egypt, and materialized in the development of marine research institutions, stations and initiatives with mainly the aim of deep exploration and study of the Red Sea and the Mediterranean. The National Institute for Oceanography and Fisheries in Alexandria (NIOF) was established in 1918, originally as the Hydrobiology and Fisheries Laboratory (Faouzi 1938)⁴ and at the time belonged to the Egyptian Coastguard Administration.

4- Faouzi, Hussein. "Hydrobiology and Fisheries Laboratory, Alexandria." *Nature* 137 (1938): 1080.



THE ALEXANDRIA MARINE LABORATORY.

(Image taken from Faouzi, Hussein. "Hydrobiology and Fisheries Laboratory, Alexandria." *Nature* 137 (1936): 1080)



(Image shared on the Facebook page of the NIOF Magazine- 5 April 2024)

The early days of the lab were, like all other institutions, primarily managed by British officials and officers. The research undertaken by the lab members focused on cultivating knowledge on factors influencing the Mediterranean basin, with specific focus on the Suez Canal connecting the Red Sea to the Mediterranean, and the annual influx of Nile floodwaters pouring into the sea at the end of the summer season (Faouzi 1938) After its establishment, the fisheries officer Sir Frederick Russell expressed the need of the lab for a research “seaworthy vessel”, and hence the ship Mabahiss came to being. Mabahiss was built for Egypt in 1929 in Newcastle upon Tyne but went on its first expedition 3 years after. In 1932 the Egyptian government was requested to loan Mabahiss to a “major oceanographic expedition” to investigate the Western Indian Ocean region, financed by Sir John Murray and initiated by Zoologist Professor J. Stanley Gardiner. The scientific committee met for the first time in 1931 and collectively nominated Lt.Col. R.B. Seymour Sewell as the scientific leader of the expedition. Mabahiss was ideal for the mission, especially given the difficulties the crew met in trying to commission a ship with the appropriate conditions. The cooperative program seemed solid to both parties, especially because the Egyptian government at the time was definitely eager to benefit the technical training that Egyptian crew members could gain from the international team in deep-sea exploration, and thus, cooperation with an international team of scientists and experts was certainly of value. King Fouad I, who was known to be a major patron of sciences, granted approval for the use of the ship with a few conditions. As reported by Aleem (1984):

“The conditions set out by the Egyptian Government for the cooperative programme included the participation of two Egyptian scientists, two engineers, two deck officers and a crew from the Egyptian coast-guard; consequently, the expedition included 32 Egyptians and 7 Britons. The ship had to be insured, and the scientific equipment was to remain on board after the termination of work and duplicate specimens were to be deposited in Egypt.” (584). The ship, which flew the Egyptian flag side by side with the British ensign, left the Alexandrian dockyard on 3 September 1933, sailed for almost 22,000 miles, and returned nine months later on 25 May 1934.

The birth of oceanographic sciences in Egypt is highly associated with the famous John Murray/Mabahiss Expedition (1933-1934), an interesting journey that has been thoroughly described and analyzed in the accounts of British scientists and Egyptian oceanographers such as Anwar Abdel Aleem, Selim Anton Morcos, and mainly Hussein Faouzi who was one of the 2 selected Egyptian scientists to join the expedition, the 2nd being the prominent chemical oceanographer Abdelfattah Mohamed.

In 1932, the Egyptian government was approached to lend Mabahiss for a significant oceanographic expedition in the Western Indian Ocean, spearheaded by Zoologist Professor J. Stanley Gardiner and financed by Sir John Murray. Lt. Col. R.B. Seymour Sewell was appointed as the scientific leader. The collaboration was seen as mutually beneficial, with the Egyptian government keen to foster knowledge and technical training in oceanography and marine sciences. King Fouad I, known for his support of science, granted approval with specific conditions, including the participation of Egyptian scientists, and coast guard crew members, along with preservation of scientific equipment and specimens to be homed in Egypt after the ship's return.

Setting sail from Alexandria on September 3, 1933, under both the Egyptian and British flags, Mabahiss traversed nearly 22,000 miles before returning on May 25, 1934. This expedition marked a pivotal moment in the development of oceanography and fisheries biology in Egypt, laying the groundwork for the utilization of aquatic resources and the establishment of the Egyptian Organization for Aquatic Resources. The ship's return was celebrated, symbolizing the successful integration of scientific knowledge and maritime skills among the Egyptian crew. Subsequently, Egypt became a hub for marine sciences education, attracting students from neighboring Arab countries and hosting international training courses sponsored by organizations such as UNESCO and FAO.

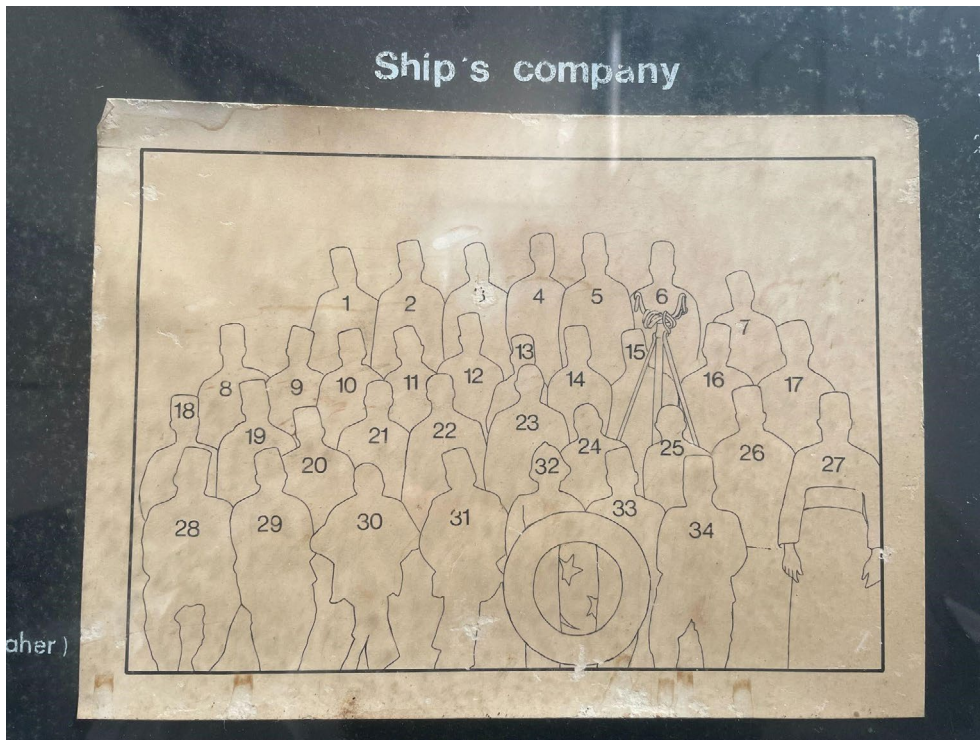


Despite its initial success, Mabahiss faced an unhappy fate. While there were efforts to revive the ship for scientific training and research, logistical and financial obstacles hindered its restoration. Six months after the John Murray expedition, ‘Mabahiss’ was used for the Egyptian Expedition to the Northern Red Sea undertaking four short cruises between December 1934 and February 1935. Following the Northern Red Sea Expedition in 1934-1935, plans for further expeditions were derailed by geopolitical conflicts (initially of the Abyssinian-Italian War, and after that World War II) ultimately leading to the ship’s decline. The ship was briefly used for some scientific work (Morcos, 1984), but mostly it was operated by the Egyptian coastguard in patrolling and transporting provisions and personnel to the light-houses on remote islands in the Red Sea. In the 1950s, the Oceanography Department of Alexandria University drew up plans to revive the ship and to use it for training students, but it turned out to be a costly and expensive procedure. Later, the ministry of scientific research in Egypt made an attempt to renovate the ship and convert it from coal to diesel fuel, yet it was another unsuccessful attempt due to the high costs involved. The ship’s state kept deteriorating. Shortly after the 50th Anniversary of the John Murray/Mabahiss Expedition, the ownership of ‘Mabahiss’ was transferred to the University of Alexandria. Years later, the ship’s “iron body was rusted and swallowed by the water in the winter of 1988, the same year that Hussein Fawzi, who accompanied it on its first trip, died.” (Milad 2022)⁵, marking the end of an era in Egypt’s maritime history.

Until this day, a permanent exhibition with pictures of Mabahiss’ crew, along with relic from the ship still sits in the ground floor of the Oceanography department in the Faculty of Science (Alexandria University)



5- <https://www.masrawy.com/crossmedia/mabahiss-story-en/index.html>



(Small permanent gallery of Mabahiss and its crew in the entrance/ ground floor of Oceanography department.
in Anfoushy)

Mabahiss story is incredibly rich in detail and is one reflective sequence of events that tells much about the material and immaterial conditions of doing scientific research in Egypt. One cannot help but notice that oceanography was, for a big part of its relatively recent history, male dominated. Reading the published but never-been-translated memoirs of the early pioneers of oceanographic sciences in Egypt, Hussein Fawzi and Anwar AbdelAleem for example has been extremely important for what they reveal about the intersection between the scholars' biographies and the political, economic and sociocultural surroundings that influenced their interest and their vision to that specific science. Fawzy (1900- 1988), the first dean of the Faculty of Science at Alexandria University (1942), belongs to the generation of intellectuals that grew up at the time of the 1919 revolution. After his baccalureate he joined the Qasr al-aini medical school and served as surgical and clinical ophthalmologist between 1923 and 1925 in a hospital in Tanta, while simultaneously taking part in the significant activities and mobilizations advanced by Cairene literary and intellectual circles. Never losing sight of his passion for music as a talented violinist himself, he introduced in a simple manner the moves and meanings embedded in Beethoven's classic symphonies and sonatas to the Egyptian public in Arabic during the late 1950s in a series of broadcast episodes as well as published books. He was one of the founding members of al-madrassa al-haditha (The New/ Modern School), a modernist movement in Arabic literature initiated by a group of artists, journalists and writers, which also set the stage for the development of the genre of short stories in Arabic literature. In 1925 Fawzy obtained a scholarship to study natural sciences in Toulouse, France, including hydrobiology and oceanography, and upon his return to Egypt, he was appointed the position of director of the Institute for Hydrobiology in Alexandria, and became a member of an international committee for research on the Mediterranean Sea.

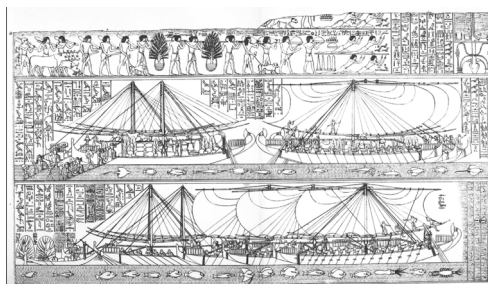
Fawzi was an intense writer and intellectual, his experience on the board of Mabahiss inspired him to write his first Sindbad book *Sindbad Asri'* (A Modern Sindbad: Journeys in the Indian Ocean, 1938) which remains the most important and sole first-hand account of the expedition by an Egyptian. The book offers fantastic insights into the conditions of the journey, the contested dynamics between the Egyptians and British members of the crew. Later in 1943, Fawzi published one of his best works under the title *Hadith al-Sindibdd al-qadzm* (Tales of the Old Sindbad), described as "one of the most interesting products of modern Arab letters" (Somekh 1992). Fawzy's book recounts and engages

early Arabic writings on geography, cartography and sea travel, while introducing science as the proper instrument to re-visit the origin of oceanic legends and mysteries and demystify these testimonies. Fawzy encounters Sindbad in the maritime tales of *One Thousand and One Nights* and realizes the significance of these tales to the development of imagination and thought, he takes it upon himself to *become* Sindbad.

In his memoirs published in 1968 entitled *Sindibad fi rihlat al-haydh* (Sindbad Through his Life's Journey), Fawzy recounts the story of when he was still working as a professional Ophthalmologist but was on the verge of leaving this profession behind in order to travel to France and pursue his interest in oceanographic sciences. Walking out of class with his colleague, a student approached him to thank him for a successful eye surgery (or a vision test) that Fawzy had done for him, the thank you note was accompanied by praising notes. After the student left, Fawzy said to his friend "I wonder what the student would say if he knew that I am about to leave him, and the field altogether, for the eyes of the blue seas?" His colleague and friend smiles and replies: I guess he would say; what a traitor! You dare to turn your back on the beautiful eye of the human for the eye of the fish?" (111)⁶

To see the world from the eye of the blue seas, or shifting the gaze to look through the eye of the fish, was perhaps on the agenda of early oceanographers, who preserved a degree of passion towards what can potentially be done if science was used as an instrument, a tool, a lens, to deploy in understanding the logic and philosophy behind much of the ancient Arab legends, seafaring accounts, or even religious narratives. In his commentary on the John Murray expedition, late Egyptian oceanographer Anwar Aleem reminds us:

To Egypt, the expedition revived memories of an ancient seafaring tradition. Queen Hatchepsut first sent a scientific expedition to explore the Southern Red Sea and the East African coast almost 3,500 years ago, and records of her expedition are engraved on the walls of the Queen's Temple at Deir el Bahari, Upper Egypt (Aleem, 1972). (1984: 585)



6- My translation.

In one of my fieldwork visits to the National Institute of Oceanography and Fisheries in Alexandria (NIOF), I sat with Dr. Ahmed Radwan, the acting head of Physical Oceanography Lab in the Institute. During our conversation on the history of the institute, I learned that the logo is inspired by the most famous ancient Egyptian expedition led by Hatchepsut herself to Punt Land. This Journey to Punt or Somalia was the 1st Pictorial documentation of a trade expedition recorded and discovered in ancient Egypt, until now. Dr. Radwan also told me that the engravings of this trip are still present in Deir el Bahari (Luxor, Egypt) and testify to the ancient history of Egyptian's relationship to the sea. In my attempt to understand the web of concepts and imaginations that lie at the heart of the scientific study of the sea, I was constantly met with multiple and not a single historical lineage to how the sea "matters" and materializes for Egyptians in the present day. Historical, artistic, religious, affective, cultural and social attachments accumulate and define the encounter with the sea, which becomes burdened with stories from holy books as well as childhood memories, sailors' legends, ancient civilizations, seafarers accounts, a collage of different narratives and origin stories. While the sea remains a perpetual challenge to the capacities of empirical understanding, it remains entrenched in a divinity that cannot be explained only through scientific logic. This inexhaustible divinity exceeds and spills over the presumed objectivity of scientific rationality. It is not the outcome of a single tradition, religion or "culture", in the case of Alexandria, it is a mesh of sensibilities, histories, images and traces that continue to haunt (Gordon 1997) the various modes of knowledge production.

How does this historical and complex relationship to the sea translate into knowledge production about Alexandria's sea-borne hazards today? What are the conditions of oceanographic work in Alexandria? How does this knowledge-making take place when the shoreline is also subject to hyper commodification producing uneven politics of access and visibility? How do these processes contribute to the Alexandrian's relationship to the sea and thus to its projected future?

Who Knows.. and Who Knows?

Sea borne Hazards Between the Existential and the Empirical

Who knows? Who knows if Alexandria is going to disappear, slowly and steadily, under the Mediterranean waves?

But also, who *knows* what is happening to the sea level in Alexandria?

In the final section of this paper, I aim to think through frameworks for understanding how Alexandria's sea is thought about, imagined, remembered, and conceptualized in the current moment of threat. I wish to expand on how knowledge about the sea in Alexandria is a production of contested imaginaries and visions, and includes multiple temporalities that at many instances entails conflicting aspirations that must be viewed in light of the historical, political and economic specificities of the city. During the period September 2023 and March 2024, I conducted ethnographic fieldwork in Alexandria, lived in different apartment buildings, and moved between different networks of sociality. Personally, I lived in different "proximities" to the sea, and experienced the imminent companionship of the sea in the everyday life of Alexandria, not in a spectacular manner but in an intimate, repetitive and seemingly regular way (i.e. from the microbus window *en route* to work and back, a thin part that is visible from only the right-side corner of the office's terrace). The sea in Alexandria is also its compass. While it has been argued that the history of Alexandria is generative of a rich local account of the Mediterranean, in my experience it has been the sea that is a constant and consistent presence in the biographies and routes of individuals and collectives, in many ways, it is constitutive of the story of Alexandria; the land and its peoples. From how to navigate the city, orient yourself and "know where you are" to predicting the day's weather from the water's color, the tides and the currents.

In her significant article published as a part of The Sinking Cities project⁷, Alexandrian journalist Rehab Abdelmohsen set off an investigation into how Alexandria's history of submergence, evidenced by the underwater cities and heritage sites, continues to haunt its present. In her extensive report, she notes that since the 2 sunken cities were discovered in 1992 (Heracleion and Canopus), scientists, researchers, local and global organizations have been studying the reasons for the submergence of these cities with attention to whether there is a possibility for history to repeat itself. The sea's unpredictability is not new, neither are people's innovative methods for developing ways to adapt and live with and in coastal areas.

7- <https://unbiasthenews.org/sinking-cities/about/>

Sea Stories

“But hopes for a dry life, an easy, pastoral, sustainable relationship between nature and culture, seem as unlikely as a full season of calm seas. It’s not that we don’t want it. It’s not that we shouldn’t work toward it. It’s that we won’t get it.” (Mentz 2016: 97)

If we expand our understanding of sinking to include the states of anticipation and reckoning, it becomes clear that catastrophe does not connote a single event, but a series of effects and affects lived in advance, during, and after the fact. In Alexandria, the enclosure and fencing of the sea for purposes of private development and commercial use renders the sea, literally, invisible. I propose that trying to examine the phenomenon of sea level rise without attending to the condition of being of the sea in relation to land is nearly impossible, or at the very least, counterproductive. One of the things that Boris Johnson may have been wrong about, is there are uncertainties lived and experienced in the now that need immediate and urgent attention, stories that are rendered irrelevant by officials when they speak of climate change induced uncertainties. These are stories found in everyday conversations, in cultural productions such as literary speculations and visual narratives.

The framework that I am proposing here is that of examining and foregrounding local experiences of what it means to live with and alongside a rising sea and the extent to which knowledge is never free of memory, imagination and speculation. In these accounts, the sea oscillates between being a protagonist and a backdrop in people’s lives. During my time in Alexandria and through my work experience as a Visiting Researcher at The Human and the City for Social Research (HCSR)⁸ in Alexandria, I came to ‘encounter’ and perhaps ‘know’ the phenomenon of sea level rise, and what it may imply, not only in and through stories about the sea itself but also the myriad of life worlds that it touches, enables, and sustains. I was granted the opportunity to work with the director and the members of the research center, who put together and publish research projects on cultural, sociopolitical and environmental issues in Alexandria specifically, including the problematic entailments of the unplanned development and rapid privatization/ exploitation of the coast. Their work maintains a special focus on addressing the poorly planned processes of development and urbanization that is drastically transforming life in Alexandria, reshaping the city and with it the relationship between the inhabitants and their

8- <https://www.hcsr-eg.org/>

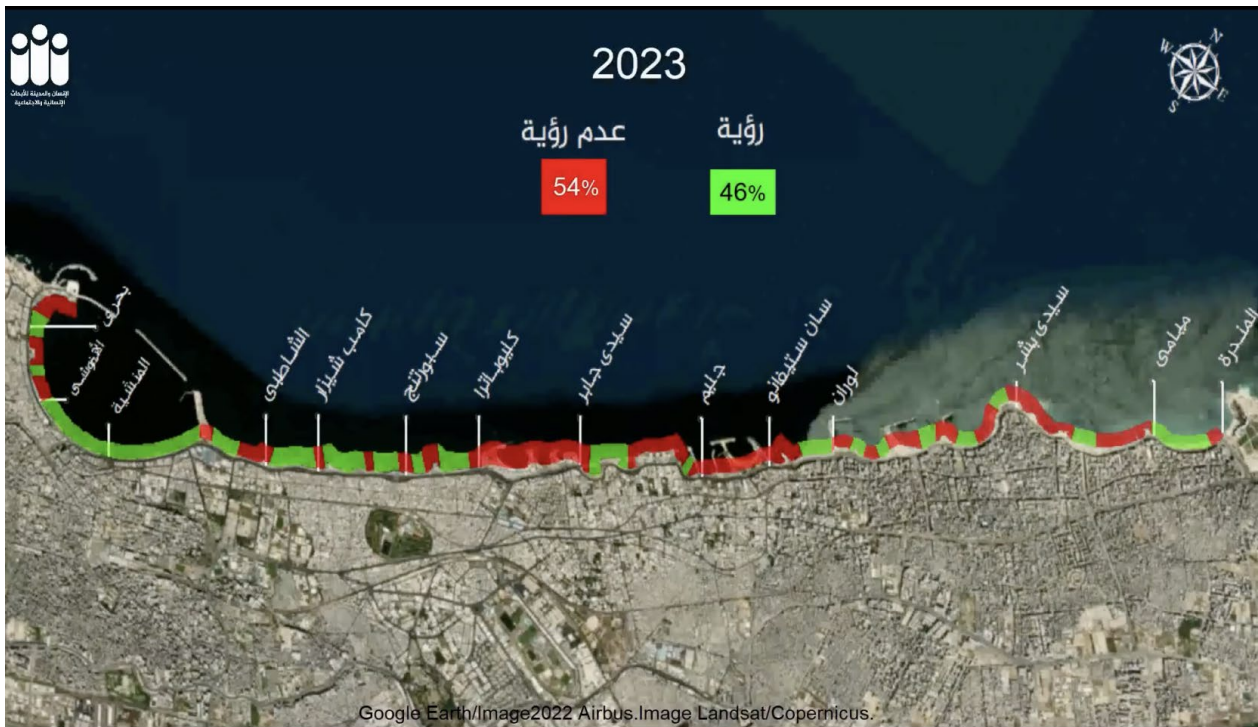
surroundings, including the sea⁹. These transformations include processes of hyper privatization and commodification of public (free) access to the sea, and the long durée of the building frenzy; from residential buildings to malls and privately owned investments. In a recent exhibition held by the center entitled “7 Colors in the City”¹⁰, the members showcased a remarkable infographic video that traces changes along the shore that directly impact the visibility of the sea to the city’s residents. The video demonstrates how the visibility of the sea- due to commodification and privatization in addition to other factors- to passersby dropped from 90% in the year 2002 to 46% in 2023. The audio-visual display was situated near the entrance of the exhibition, playing on loop- it enables the exhibition visitors a visual representation of the corniche including the shoreline constructions of different kinds that either completely block sea view or at the very least transforms this visibility into a commodity that people may only enjoy only from within private beaches, restaurants, cafes, etc. (see also their campaign Alexandria Does Not See the Sea)¹¹. While watching, you could also hear the different city noises that are part and parcel of the city experience.



9- <https://www.hcsr-eg.org/en/is-the-city-sinking-alexandria-facing-climate-change/>

10- <https://shorturl.at/WFUX4>

11- <https://shorturl.at/nEMsc>



In these stories, knowledge takes the form of longing to a certain being in proximity to the sea that complicates any linear conception of the rising sea, while also offering insight on what ruptures and discontinuities are in fact, already here, in people's relationship to the sea. What I mean by sea stories here is a form of advocacy that does not claim to speak for nature, and does not act upon predetermined priorities. It can be described as an attempt to mediate a fraction of the everyday frustrations and losses expressed by people as they move in and across the city. I see this framework of knowledge production one fruitful avenue to understand how, on the ground, people perceive and narrativize their relationship to the sea and as such allows us to identify the conditions which interrupt and largely impact this relationship. Furthermore, these stories unravel complexities related to the hierarchies, inequalities and unjust dispositions that are born as a result of the establishment of the new mega projects and the sprawling of private investments along the corniche. For example, the ever-increasing wealth gap between members of different socioeconomic classes becomes one of the main features of what is at stake in the processes taking place along the corniche. The resulting discrepancy in 'accesses to the sea is also directly related to ecological knowledge.

In a recent study published by Egyptian scientist Essam Heggy along with Alexandrian researcher Sara Fouad and co-author Udo Weilacher, the findings demonstrate how the rapid alteration of the city's landscape has critically disrupted the inhabitants' cultural connections to the Nile and Mediterranean

Sea. The researchers point out that the younger generation's perception of climate-related risks was particularly affected by the city's various transformations, including changes to the seafront and the filling of waterways. They caution about the implications of the current lack of public awareness, and the ways in which it impedes efforts to mitigate the increasing coastal hazards, which may account for the rise in mortality observed during such events over the past decade. The scientists utilized satellite imagery, mapping data, on-site validations, and public surveys based on the City Development Strategy for Sustainable Development criterion, in order to evaluate the inhabitants' perception of the degeneration and transformation of some of the city's most historic urban waterways, namely El-Mahmoudeyya canal. Their study findings reveal that the ongoing inefficient transformation of the Mahmouddeyya Canal resulted in "[t]he alienation and disengagement of local communities due to the dominance of governmental institutions in decision-making", as well as younger generations' lack of connection to "the city seaport, cultural heritage, and maritime identity." (Fouad *et al.* 2023: 13). This research, in addition to the important and ongoing work achieved by HCSR are examples of how we might pay attention to how sea-related problems are framed by people and through everyday experience. This approach offers us perspective on the pressing issues that are impacting the here-and-now of everyday life in Alexandria, as well as its ecological history, present and future.

Oceanographers as Storytellers: Experiences, Memories and Speculations

Shifting our focus from the supposed stability of land, with its pastoral and georgic master narratives, to a broader vision that embraces the maritime world . . . will mean abandoning certain happy fictions and replacing them with less comforting narratives. Fewer gardens, and more shipwrecks. But – and this is the key point – we have these narratives already. We just don't always put them at the center where they belong. (*Ibid*: 98)

The 2nd framework that I propose is that of engaging the biographies and life histories, in addition to the technical and material work conditions of local oceanographers and marine scientists. In Egypt, the community of oceanographers is relatively small, and I have been told by one of my interlocuters that, as a community, they "all know each other". Most if not all local oceanographers work in either the academic department of Oceanography or the NIOF. Both sites are a walking distance from each other in the Anfoushy neighborhood in Alexandria, a buzzing neighborhood that is adjacent to Qait-

bay Citadel. The institute is a tall dark blue (opaque) glass building, properly bureaucratic and formal. It is important to note that these are the only 2 places in Alexandria where oceanographic sciences are taught and where research in local and international publications is produced, and both sites have extremely limited hiring capacities. I met with a few Oceanography department former students who graduated over the past 5 years, and all of them with no exception happen to work in totally different fields. It was through them that I came to learn about the non-existent job prospects for this discipline in Egypt, and I also learned through them as well as current members of the institute and the department that over 90% of current Egyptian oceanographers went into this education by mere coincidence. Oceanography is a division of the Faculty of Sciences in Alexandria university, where students enroll in their specialization in the 3rd year of college. Every oceanographer I spoke with during my fieldwork had a story to tell about how they ended up in this department, none of them were about an inherent desire or a prior passion for this field in specific.

Nevertheless, each oceanographer I spoke with had an incredible sense of pride and purpose which attaches them to the field, even if they had initially walked into it by chance. Knowing about the biographical and historical context in which these actors entered a space of scientific inquiry of the sea offers great insight about the webs of meaning making that motivate the scientific study of the sea in local settings and under specific historical conditions. Moreover, paying attention to the work conditions of local oceanographers enables a more nuanced understanding of not only the conditions of possibility for knowledge making but also the processes of prioritizing (and agenda making) that determine the allocation of funding and of facilitation for the distinct fields of scientific research. At the end of the day, these scientists work in institutions fully controlled and regulated by state authorities. While most oceanographers I spoke with acknowledged the urgency of the “sea-level rise” phenomenon, the conversation almost always moved to a certain scaling down of the phenomenon, in a tone of reassurance and if I may add, an air of objectivity. Local scientists know the facts, and are well aware of the vulnerabilities that are unequally distributed across the city of Alexandria and across Egypt more broadly. They are also the actors who are called upon in every instance of “extreme” event, such as when the sea suddenly recedes, when incidents of lives’ loss by drowning, or when Boris Johnson makes statements about the approaching submergence of Alexandria.

During my conversations with members from the Oceanographic institutes in Alexandria we discussed issues and obstacles that the community of oceanographers in Egypt come across. One aspect of the issues they face is the excessive number of state organizations and entities that work along the water's edge, almost too many and are hardly collaborative. While the institute was supposed to be the only site for decision making and execution of sea-related projects, there is now an abundance of agencies that end up muddling and diffusing the responsibility for taking action. For example, Egyptian Environmental Affairs Agency (EEAA), the Coastal Research Institute (CoRI), Shore Protection Authority (SPA), and NIOF should all be working closely together while most of the time these overlapping institutes and agencies are not provided clear and mapped systems of responsibility and the tasks get haphazardly distributed among their members, which opens the way for disagreement and derangement. Another aspect that was often discussed in our meetings was related to time; when are oceanographers called up to offer their input? I have been told that it almost always happens *ex post facto*, when it is already too late to reverse the impacts of poorly made decisions by local authorities, for example the processes associated with the Corniche road widening in Alexandria. The different governors of Alexandria implement varying contributions to the city's urban planning, some of which end up causing drastic and irreversible damage to the coast and its ecosystems. Advising against such 'developments' is highly renounced, some members told me, and usually met with a defensive discourse that attacks the scientists as deniers of growth and national progress. The scientific community's insights are in line with those of researchers Fouad, Heggy and Weilacher (2023) who noted that in Alexandria "The current organizational setup of emergency response systems remains highly centralized, with limited coordination between agencies horizontally and vertically down to the level of communities." (14)

The stories that local oceanographers tell about their lives and their work are significantly rich and their subjectivity significantly layered. At once, they embody the role of the objective observer and analyst who is expected to foresee and identify the magnitude of the ongoing changes and the potential hazards; the best- and worst-case scenarios and everything that lies in between. At the same time, local oceanographers are individuals whose subjective and affective experiences of the city are entangled, same as all other inhabitants, by the same hazards. They draw upon not only their technical knowledge of the sea, but also personal histories, memories, beliefs and desires that are part and parcel of their upbringing and their being. The story of the rising sea is one that cannot possibly be contained in the

glass building and the offices inside it, in the same way that it cannot be understood and theorized only from the confinements of this building and the bureaucratic, legislative and authoritative forms of expertise.

I began this paper by examining the phenomenon of sea-level rise in Alexandria by looking at what has been published in terms of scientific papers and reports, and by tracing the history of “extreme” weather events in Alexandria to situate the current concerns about sea-borne hazard in its proper historical context. The paper then moves on to the question of knowledge, and examines the emergence of scientific study of the sea in Alexandria. I demonstrate how the emergence of this form of scientific imagination belongs to a complex historical context in which Egyptians were revolting against British colonialism. It was a part of their vision for national scientists to be on par with global pioneers, they were about to use science, technology, and innovative instruments in unraveling mysteries of the deep and vast seascapes about which little is known. In their biographical data and personal accounts, we encounter a desire for emancipation co-existing with a sense of urgency to dig through the rich reservoir of history and tradition. This digging would be means to a different, more “modern” end, namely to demystify and enlighten, correcting all misconceptions, superstitions, and irrationalities. These early generations of oceanographers, I propose, were also finding their postcolonial selves, finding God, finding nature, all while searching for modernity. In that section, I hoped to emphasize how the historical specificity of scientific imagination is crucial for understanding how, in present day, this “expert” knowledge operates, what its motives, purposes and agendas are or could be. Is it bureaucracy? Or the dread of looming disaster? Finally, in the last section of the paper I highlight Alexandrian oceanographers as important and extremely rich storytellers and knowledge makers, whose life and work conditions reflect bigger contexts of state governance, scientific research, and shifting relationships to oceanic sciences and imaginations.

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