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SINGAPORE SURFACING

Thoughts about Rising Sea Levels in Singapore

ZAKARIA ZAINAL



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FOREWORD

Word from the 'Wart'

Li Li Chung

Getting one's head around "the climate crisis" is not easy. Which aspect of the crisis are we talking about?

Most of us can say something about climate crisis: hot days/hottest year since YearXX, rainstorms and flooding, out-of-control forest fires, carbon emissions targets, carbon footprint of things we use, shockingly fast melting glaciers, bleached corals, mangrove loss, struggling alternative farming vertical and at sea. It's endless. (Good summary here 2024 wrapped: *The biggest environment stories of the year, and what's next*²)

Then there are the Singapore targets mostly by 2030: max +1.5 degree Celsius temperature, net zero carbon emissions, 30% locally produced food, 70% recycling target (now hovering in the 50s%), fleshing out the Long Island Plan at southeast Singapore.

Then there are high octane efforts beyond us: COPxx (United Nations Conference of the Parties) now at 30, the infatigable Greta Thunberg, investment opportunity "worth US\$9 trillion (\$11.7 trillion) by 2050 on flood protection and cooling systems to decarbonize or cut emissions"³. Mountains of content online.

Then there is new vocabulary, to name a few: biophilia, climate (in)justice, eco anxiety, carbon sinks, greenwashing, aquaculture, fish condominium, food sovereignty.

And... yet... I learned after hours of watching Netflix's eight episodes of *Life on Our Planet* narrated by Morgan Freeman that there have been five mass extinctions in earth's four-billion-year history. Mostly due to changes beyond our doing (since humans didn't exist back then) such as shifts in magnetic fields, axis tilts, asteroid hit, earthquakes. The earth surface chilled or heated up beyond recognition and just about all life gets wiped out. Then somehow something has survived and from that, new life began again.

So disaster is going to happen anyway, right? Should we just go pure Taoist, respect the laws of nature and be done with it?

This project by Zakaria Zainal so appropriately titled *Singapore Surfacing* is Exactly's effort to understand just one aspect of this climate crisis, relevant to Singapore: rising sea levels. And show how he as one resident in Singapore feels about it. Why bother with pumping out water, barricading ourselves, recycling more, growing food, fermenting food, shipping less, flying less...

Let's look at some recent basic information on Singapore's project on rising sea levels:

The most visually stunning content I've found is this: *Climate Code Red. Saving Singapore's Shores*. Straits Times January 2022. Compiled: IPCC AR6 Working Group I report, National Environment Agency, PUB, NParks, Singapore Land Authority, NTU's Earth Observatory of Singapore. <https://www.straitstimes.com/multimedia/graphics/2022/01/singapore-protect-sea-levels-rise/index.html?shell> (For more extensive reading, please refer to the brief bibliography below).

Basically here's our Singapore rising sea levels problem and approach, compiled with a little help from ChatGPT:

- Approximately 30% of Singapore lies less than 5 meters above the mean sea level, making it particularly susceptible to flooding and coastal erosion.
- In the worst wet weather, we could be **below** sea level: by 2100, Singapore's mean sea level is projected to rise by up to 1.15 meters. When combined with extreme weather events such as high tides and storm surges, sea levels could temporarily spike by an additional 4 to 5 meters.
- Government estimates the need to invest over S\$100 billion in coastal protection of Singapore in these next 100 years:
 - ◇ Land Reclamation Standards: taller build, raise minimum reclamation level from 3 to 4 meters
 - ◇ Polder alternative — drain out water to expose land, rather than fill sea with sand: *HDB is spearheading Singapore's inaugural polder project at the north western Pulau Tekong, which aims to add 810 hectares of*

new land by constructing a 10-kilometer-long dike, standing about 6 meters above sea level, to enclose the area. Once enclosed, the seawater will be drained, creating land below sea level that is protected by the dike.

- ◇ Coastal Protection Strategy: dikes or sea walls and stone embankments to cover about 70%–80% of the coastline, including the imposing Marina Barrage to pump out and keep out sea water.
- ◇ R&D: In March 2024, a S\$125 million Coastal Protection and Flood Management Research Programme was launched. Including Coastal Protection and Flood Resilience Institute at NUS to develop solutions such as modular and nature-based floating structures to resist water and also to support infrastructure, housing, buildings.
- ◇ Flesh out the 'Long Island' Plan at Singapore's southeast coastline to protect low-lying shorelines and provide new waterfront living space. *'Long Island' offers an integrated solution... (which) entails reclaiming about 800 hectares of land off the East Coast, potentially in the form of 'islands', to protect the low-lying area from sea level rise and strengthen Singapore's flood resilience, enhance our water resilience with a new reservoir, and create additional land to meet future development needs. The creation of 'Long Island' will also present new recreational opportunities by adding around 20 kilometres of new waterfront parks, part of a larger and continuous 120-kilometre-long stretch of accessible waterfront space along Singapore's southern coast.* URA update: 'Long Island' <https://www.ura.gov.sg/corporate/planning/Master-Plan/Draft-Master-Plan-2025/Long-Island>.

- ◇ Arrest significant decline in biodiversity especially in coastal mangrove forests. In the 1820s, mangroves covered about 13% of the island's land area. Today, they occupy less than 0.5%, approximately 734.9 hectares (7.35 km²), mostly around Sungei Buloh Wetland Reserve and Pulau Tekong.
- ◇ Singapore still has plastic trashy beaches, with the biggest problem being plastic washup from elsewhere and plastic fishing nets/apparatus that fatally trap sea creatures. Curbs to limit single plastic use in Singapore are lukewarm: 5-10 cent charge for plastic bags; if needed, use recyclable disposable crockery; limit use of plastic straws. No ban yet on selling plastic bottled drinks or styrofoam takeaway food packaging. But we generate enough to empty an island to burn trash.
- ◇ Much reporting is seen about raising fish in seas near us and on land and also vegetable growing on vertical and private plots, investing in pig farms in Indonesia and China.
 - Fish condominium — urbanized fish farming. We're not a farming community. Takes 6-7 months to harvest⁴
 - Grow food on water. *Project Castaway Season 3 in CNA's Growing Wild series by Christopher Leow. Season 1 introduced growing edibles and brought nature into personal spaces. Season 2 imagines how we cannot just grow food better, but should also safeguard the environment. Season 3 Project Castaway... where for an entire year, Chris coaxes a whole new farming frontier — the ocean as a floating farm — to find self-sufficiency in food, energy and water.*⁵

At the helicopter level, Singapore's plan is to explore and execute using sophisticated technology: diked up, pump out water. Essentially barricade ourselves. There's also something we haven't talked about: climate refugees (Singapore doesn't have a track record of being hospitable despite most of us descending from sea-faring Asian immigrants). Additionally, as experienced during Covid, where are we going to get our food, with some 90% imported today?

A big question mark at the end of the last episode #8 of *Life on Our Planet*: firstly, this next extinction is undeniably from how humans live; secondly, we'll morph, we just don't know to what? Whatever happens happens, nature carries on.

Humans are now causing the Earth's sixth mass extinction event. We are taking up almost all habitable land to feed ourselves, releasing carbon dioxide into the atmosphere and causing global warming, warming and acidifying the oceans and causing extreme weather events, all of which are being done at meteoric speed. However, humans are also the first species in the 4-billion-year-old story of life to understand what is happening to the world and understand what is needed to put it right. How we act now will determine the next chapter in the story of life. Freeman notes that no matter what future awaits the Earth, "life has always found a way..."⁶

¹ ‘Wart is short for Stalwart, which Exactly Foundation’s first resident Kevin Lee suggested that for future residences, I should pen a statement as “Exactly Foundation Stalwart”. Thought “Stalwart” carried too much adult responsibility; ‘Wart will do.

² by Chin Hui Shan and Shabana Begum. 2024 wrapped: *The biggest environment stories of the year, and what’s next*. Straits Times, 23 December 2024. https://www.straitstimes.com/singapore/2024-wrapped-the-biggest-environment-stories-of-the-year-and-whats-next?utm_source=emarsys&utm_medium=email&utm_campaign=ST_Newsletter_AM

³ Audrey Tan. *Climate adaptation solutions could offer \$11.7 trillion investment opportunity by 2050: GIC*. Straits Times, 2 May 2025. https://www.straitstimes.com/singapore/environment/climate-adaptation-solutions-could-offer-11-7-trillion-investment-opportunity-by-2050-gic?utm_source=emarsys&utm_medium=email&utm_campaign=ST_Newsletter_PM&utm_

⁴ AsiaOne. *A fish farm in the heartlands*. Future Food. January 2025. <https://www.youtube.com/watch?v=l4c-z55Gnqw>

⁵ <https://www.channelnewsasia.com/watch/growing-wild/our-floating-future-5025296>

⁶ https://life-on-our-planet.fandom.com/wiki/Chapter_8:_Age_of_Ice_and_Fire

Select Bibliography

- Chua, Charlene; Luo, Mingxuan; Tan, Ryan; Lee, Rachael; Adeline, Stephanie; Tia, Zachary; Tan, Zeke. *Climate Code Red. Saving Singapore’s Shores*. Straits Times January 2022. Compiled from Sources: IPCC AR6 Working Group I report, National Environment Agency, PUB, NParks, Singapore Land Authority, NTU’s Earth Observatory of Singapore. <https://www.straitstimes.com/multimedia/graphics/2022/01/singapore-protect-sea-levels-rise/index.html?shell>
- Chow, W. T. L. (2019). *Commentary: How effectively can Singapore adapt to sea level rise?* Singapore Management University. Retrieved from https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=4739&context=soas_research
- Ng, Trina; Gangadharan, Nidheesh; Moise, Aurel Florian; Palmer, Matthew. *Past and future sea level change*. In *Third National Climate Change Study (V3) Science Report*. Meteorological Service Singapore 2024. Retrieved from https://www.mss-int.sg/docs/default-source/v3_reports/v3_science_report/v3_science_report_chapter_12.pdf
- National Climate Change Secretariat. (n.d.). *Climate change in Singapore*. Retrieved from https://en.wikipedia.org/wiki/Climate_change_in_Singapore
- Ng, W.-S., & Mendelsohn, R. (2005). The impact of sea level rise on Singapore. *Environment and Development Economics*, 10(2), 201–215. <https://doi.org/10.1017/S1355770X04001849>
- Ng, W.-S., & Mendelsohn, R. (2006). *The Economic Impact of Sea-level Rise on Nonmarket Lands in Singapore*. Yale School of Forestry & Environmental Studies. Retrieved from <https://resources.environment.yale.edu/files/biblio/YaleFES-00000261.pdf>
- Shennan, I., et al. (2021). A new Holocene sea-level record for Singapore. *The Holocene*, 31(10), 1630–1642. <https://doi.org/10.1177/09596836211019096>
- Tan, C. H., & Lim, J. (2024). *Sea level rise risks, adaptation strategies, and real estate prices in Singapore*. *Journal of Public Economics*, 224, 104867. <https://doi.org/10.1016/j.jpubeco.2024.104867>
- Tan, Cheryl. *Current generation must invest to keep Singapore sustainable for future generations: Grace Fu*. Straits Times, 22 November 2024. https://www.straitstimes.com/singapore/current-generation-must-invest-to-keep-singapore-sustainable-for-future-generations-minister?utm_source=emarsys&utm_medium=email&utm_campaign=ST_Newsletter_AM&utm_

KEYNOTE ESSAY

Reclaiming Singapore: Identity and Heritage at the Water’s Edge

Dr. Ven Paolo Bruno Valenzuela

By 2100, sea levels around Singapore are projected to rise by up to 1.15 m, exceeding previous estimates, and potentially reaching 4–5 m when extreme high tides coincide with storm surges.¹ Furthermore, around 30% of the city-state lies less than five metres above mean sea level, putting key infrastructure and low-lying areas at risk.¹ The Singapore Government views climate change as an existential threat — and one that it is prepared to spend extraordinary sums to address over the coming century.² And in the face of the climate crisis, Singapore will do what it has always done: reshape its land and advance its society seaward.

Since the first reclamation works began in the nineteenth century, Singapore’s land area has expanded by almost 25% through creating land where there were once sea, river, mangrove, and mudflats.³ Much of today’s skyline is anchored on that engineered certainty. The city does not simply sit beside water — Singapore is built through an ongoing negotiation with it, where reclaiming land means creating the country’s future.

Yet “reclamation” in “land reclamation” is a misnomer. There is nothing being claimed back. The process is not restoration, nor is it to regain what was lost. Reclamation is invention. It claims something that was not there in the first place. It turns water into ground, and ground into future.

That transformation has always had a cost, and not all of it is visible at first glance.

This essay unpacks Singapore’s relationship with the water’s edge. It explores how heritage and identity are entangled with how the country has shaped its coasts, and what had to be traded away to become what it is today. It also asks what happens next, as Singapore claims more of the sea in the name of survival and future development. What is lost in the process, and can any of it be reclaimed back?

These questions serve as a prelude to Zakaria Zainal’s *Singapore Surfacing*, where he invites us to look again at the human-environment relationships formed by living with an ever-changing coastline that is always engineered, manicured and manufactured, and where things are constantly lost in the process.⁴ Zakaria does not simply show places, he reveals tensions between permanence and erosion, protection and exposure, pride and unease, land as achievement and land as burden. This essay aims to complement his photo series by highlighting Singapore’s relationship with land reclamation and engineering at the water’s edge: in the past, the present, and a glimpse of the future.

History built on shaping the water's edge

Colonial History: Ports, trade, and the first engineered shoreline

Unlike present times where the coasts are highly valued scenic spots, in colonial Singapore, the coast was not scenery, it was economy. It was where ships arrived, goods moved, and the colonial city took shape, and the first vestiges of modern Singapore's identity were planted. Reclamation began early, not as a grand national project, but as practical repair work that quickly became spatial ambition.

The first reclamation is often traced to 1822, when works along the south bank of the Singapore River created what is now Boat Quay, stabilizing swampy ground and producing new commercial frontage.³ The colonial period was a time where engineering works are more purposeful, and usefulness was measured by proximity to maritime trade. Collyer Quay, reclaimed between 1859 and 1864, was designed not only to create a seawall and road, but to produce an area where merchants could face the sea and watch the movement of their ships.³ With the British aiming to make a foothold in the region, reclamation extended the waterfront itself, situating Singapore in the middle of a bustling trade route.

Furthermore, the reclamation of Telok Ayer Bay (1879–1897) physically pushed the city seaward, enabling streets like Cecil Street, Robinson Road, and Raffles Quay to emerge as connective tissue between port and town.³ The colonial shoreline was not simply altered, it was reorganized to become an example of colonial engineering at its best.

As a result, the principles behind colonial period reclamation still shapes Singapore today: that land can be produced and that the coastline is not a limit but an opportunity to expand.

The Japanese Occupation: Rupture, vulnerability, and survival under constraint

While colonial reclamation expressed confidence in building seaward, World War II defined Singapore's coast as source of vulnerability and scarcity, and where the city's wartime experience is often told through surrender, occupation, and survival. The Former Ford Factory, where the British surrender took place in February 1942, now anchors a permanent exhibition on the legacies of the Occupation.⁵ This period matters in the reclamation story, not because the coastline was altered during this period, but because it solidified Singapore's sense of fragility and anxiety. The island learned what it meant to be cut off, to face shortages, and to experience the coastline as exposure rather than opportunity. This experience shaped how the country feels about risk, and its repercussions to the decades that will follow — that eventually be intertwined with reclamation itself. It lingers quietly beneath the post-war drive to secure infrastructure, deepen ports, expand land, and plan for long-term survival.

Post World War 2: Development pressures and the politics of space

Post war, the former British colonies saw themselves at the cusp of independence, forming the Federation of Malaya. This period with Malaysia intensified Singapore's developmental urgency. Housing needs surged, industrialization accelerated, and the limits of land became more than an abstract concern. As tensions with the federation grew and independence become more imminent, reclamation became increasingly attractive.

When Singapore became independent from Malaya, land reclamation became a core development strategy, recognizably national in scale and ambition, and representative of its drive for survival. It no longer reads as incremental waterfront modification. As Singapore pivots

itself as an independent country surrounded by larger nations in an emerging and increasingly competitive Southeast Asia, reclamation did not simply offer more space. It offered flexibility and the ability to plan as though the constraints could be engineered away.

Reclaiming land become strongly tied to Singapore's sovereignty: every additional hectare has political meaning, and it is also widening the material basis of the country's self-determination in the middle of an emerging and competitive region. Singapore's East Coast, for example, is not just "coastal land." It is a manufactured geography that enabled housing estates, expressways, and new lifestyles to emerge along what used to be sea. The period also expanded industrial capacity and logistics infrastructure through land reclamation, reinforcing the idea that survival depended on controlled growth.³

Over time, reclamation increasingly shaped not only where Singapore could build, but what Singapore could imagine itself becoming: modern, efficient, and capable of turning constraint into advantage. This identity is not accidental: it is produced, like the land itself. More reflectively, it is representative of a *kiasu* culture – where Singapore does not want to be left behind by its neighbors; and in doing so, it became the distant frontrunner of what Southeast Asian nations can become.

Crisis in expanding at the water's edge

While Singapore's reclamation history is often narrated as triumph of a small poor country engineering itself to become a highly developed nation, it also contains recurring crises that complicates it relationship with the water's edge. It is very clear that land reclamation has always demanded trade-offs: ecological, political, and moral.

These debates, shaped by a history of claiming through reclaiming are at the centerpiece of contemporary discourse on reclamation in Singapore. It is critical to remember that Singapore's relationship with the sea is strategic. The port is lifeblood, the shoreline is boundary, and the coastal edge has long been treated as a space that must be engineered, secured, and monitored.

Today, climate change reframes this protective impulse. Sea level rise transforms the coastline into a frontline again, not against armies, but against slow, relentless physical change.¹ The response, as history has shown, feels familiar and cyclical: long-term planning, infrastructural imagination, and the willingness to invest at immense scale no matter what the cost.²

However, moving forward effectively requires understanding lessons of the past.

Environmental Crisis: What disappears when land appears

Reclamation produces land, but it also erases environments. It replaces tidal flats, mangroves, reefs, and nearshore ecosystems with engineered certainty.

The formation of Jurong Island is a powerful example. Reclamation combined multiple offshore islands into one petrochemical hub, creating industrial space of immense economic value, paving the way to Singapore's becoming a global economic miracle.^{3,16} Yet studies also show that reclamation in Singapore's southern waters has come with significant habitat loss, including the disappearance of marine environments that once supported biodiversity.⁷ The environmental costs are often spatially displaced, occurring offshore, underneath the waters and out of sight, while the benefits rise visibly as skyline and infrastructure.

The environmental impact of reclamation is one that Singaporeans hold close. Reclamation is not simply a technical problem solved through engineering. It contends with ethics as reclamation reorganizes what counts as valuable space. It privileges land that can be developed, while water and coastal ecologies become treated as expendable.

Diplomatic Crisis: The politics of extraction and the limits to expansion

The impact of Singapore's reclamation also extends beyond its national borders. The first of which is that land reclamation requires sand, and sand is not an infinite resource. By the late twentieth century, Singapore's domestic sources of fill material became insufficient, pushing the country toward imported sand.³ Regional sand extraction has been linked to ecological damage, social harm, and governance challenges in areas where regulations are lax, especially when illegal mining and under-reporting distort accountability.⁹ In recent years, sand has become a geopolitical issue as it is not merely a commodity, but a material that ties Singapore's expansion to the landscapes and livelihoods of its neighbors. Global discussions increasingly frame sand as a sustainability crisis and the impact of reclamation does not end at the shoreline.¹⁰ Its footprint travels and reverberates regionally and globally.

Beyond the issue and crisis of sand flows, a coastline does not only border nature. It borders other states. The Johor Strait dispute illustrates how reclamation can generate regional friction serious enough to reach international law. In 2003, Malaysia sought provisional measures at the International Tribunal for the Law of the Sea over Singapore's reclamation works in and around the Straits of Johor.¹¹ While this case eventually moved toward settlement, with formal agreements captured through arbitration processes¹², it also exposes a limit that engineering cannot easily dissolve: maritime boundaries, shipping lanes, and

regional trust. Reclamation may create land, but it can also create tension.

Crisis of Heritage and Sustainability: Reclaiming the past and claiming the future

Semakau is often praised as one of Singapore's "clean" contradictions: a landfill that looks almost like a sanctuary. The country has highlighted Semakau as a more sustainable alternative to reclamation, addressing the country's need for waste management and land. Semakau's calm surface hides the fact that it was engineered into being by rearranging an older geography. Semakau Landfill was created by building a 7-km perimeter rock bund that encloses part of the sea off Pulau Semakau and Pulau Sakeng, sealing the coast so waste could be contained and managed offshore. Semakau has served as Singapore's only landfill since 1999.¹³ It represents a kind of reclamation that manages waste rather than growth, yet it still depends on coastal transformation. It is also time-limited. Semakau is expected to reach capacity around 2035, raising urgent questions about what comes after.¹⁴

However, Semakau represents a crisis of identity. Pulau Sakeng, also known as Pulau Seking, was not just "space" — it was a living community whose culture is lost with growth. Pulau Seking was a settlement of around 525 people, "mostly descendants of Singapore's Orang Laut," and is the last Orang Laut sea-people settlement within its territory. When the island converted into an offshore landfill in 1993, residents were resettled into HDB flats, far from the coasts and the water they once called home.¹⁵

As Singapore made new land, it was at the cost of identity-unmaking: when the shoreline is redesigned into bunds, terminals, and containment cells, the coast stops being a place to live through, and becomes a place to manage. And when the coastline shifts, so does what can be remembered of earlier coastlines. Heritage

becomes fragile when the places that once held it no longer exist in the same form.

Even today, former islanders describe Pulau Semakau as more than a landfill, remembering jetties, sampans, and a life shaped by tides, and calling themselves Orang Pulau or Orang Semakau, holding onto a sea-based inheritance even after forced departure.¹⁶ Scholars of Singapore's offshore islands argue that these spaces were repeatedly repurposed to serve the urban core, producing uneven sacrifices at the periphery.¹⁷ These are captured by Zakaria's photo series, and perhaps, a call to reclaim identity: the right for these histories to remain visible, and for the Orang Laut to be treated not as a vanished footnote, but as part of the nation's living heritage.

While Semakau has had its issues, elsewhere in Singapore, new ways of molding the coast and creating new land is being established. For instance, Pulau Tekong, Singapore's first polder project, expresses a different direction to filling the sea with sand. It uses empowering methods to reclaim land while reducing sand usage by about half, and it integrates coastal protection into the reclaimed form itself.¹⁸ This is reclamation adapting to criticism: less sand, more resilience logic, more explicit defensibility. Then there is Long Island, perhaps the clearest fusion of old and new ambitions. It is framed as a future coastal protection measure for East Coast vulnerability, while also promising new land for development.¹⁹ It is reclamation as adaptation, and adaptation as reclamation. However, are we simply repeating the same gesture, pushing outward, when the real problem is that the sea is already pushing back?

Identity through shaping the water's edge

Engineering as national character

Singapore often tells its story through competence, through mastery of constraint, through designing solutions at scale, and with

for better or for worse, a clear *kiasu* spirit. Reclamation is central to that identity because it embodies the ability to build futures — not wait for them — one that Singapore aims to take control of the wheel, and never let go. The coastline becomes a demonstration of national will. Reclamation is not only land-making, but also meaning-making. Yet identity is never only pride, it is also memory, it is heritage.

The best example of this is the much-lauded Marina Bay, often treated as a symbol of Singapore's modernity, a poster child of long-term planning and reclamation vision. Land reclamation works for Marina Bay began in the 1970s, laying the groundwork for what would later become a defining national image.⁶ Marina Barrage completes the engineered narrative — one painted by the Sustainable Singapore Gallery as a triumph of persevering in investing in research and development. It is a multifaceted coastal infrastructure that creates a freshwater reservoir in the city, contributes to flood control, and doubles as a lifestyle space, a deliberate fusion of utility and identity.⁷ Marina Barrage does not merely manage water, it showcases Singapore's preferred relationship with water: controlled, productive, and aesthetically integrated into national branding. Marina Bay is also a reminder that reclamation does not end when construction ends. The city must continually maintain the conditions that make this waterfront possible: managing drainage, tides, storm events, and now sea level rise.

A model of resilience with plenty of room for improvement

Singapore is frequently presented as a model of climate resilience: a small island-state planning far ahead, investing heavily, and treating climate change as a long-horizon governance problem.² Beyond the glitz and glamor of Singapore's skyline, one that urban planners around the region aim to emulate, there is a need to emphasize that it

came with sacrifices, perseverance, and risk taking. It matters that people should understand that Singapore can plan across decades. It matters that Singapore can mobilise institutions, finance, and expertise to secure its coastline. At the same time, resilience is not only about protection. It is about what is valued, and remembering what is sacrificed.

If reclamation is framed only as a solution, it becomes too easy to ignore what it erases. If it is framed only as harm, it becomes too easy to deny what it has enabled. Singapore's reality sits between these truths, and the tension is precisely what makes the water's edge such a powerful place to think with.

This is where Zakaria Zainal's *Singapore Surfacing* becomes more than documentation. It prompts us to look again at coastlines that appear stable, and to notice the layers of labour, loss, ambition, and uncertainty embedded in them. The photographs draw attention to surfaces, but they also suggest what lies beneath.

Claiming heritage and reclaiming identity at the water's edge

When talking about Singapore's heritage, it is imperative to emphasize that it is not those that are only in conserved shophouses, museum galleries, and history books. The coasts of Singapore, the engineered shorelines that made the modern city possible, and the last few bastions of untouched shores are all part of Singapore's heritage and identity. They tell a critical story of claiming, reclaiming, losing, and gaining. Reclamation has been a tool of survival and ambition, a way to translate constraint into opportunity. It has also been a process of forgetting, rewriting older coastlines into new ground, and leaving ecological and social costs behind the neatness of new maps.

At the water's edge, Singapore is always becoming. The question is not whether the country will

keep building because Singapore almost certainly will. The question is what kind of relationship Singapore will choose with the sea, and what it will be willing to acknowledge as it does so.

The future is not only about claiming land. It is about reclaiming identity, not as a dominance over the sea and the water's edge, but as a more careful way of living with it.

References

- ¹Centre for Climate Research Singapore. (2024). *Third national climate change study (V3): Stakeholder report*. Meteorological Service Singapore, National Environment Agency. https://www.mss-int.sg/docs/default-source/v3-reports/v3-stakeholder-report_20240306.pdf
- ²Prime Minister's Office Singapore. (2019, August 18). *National Day Rally 2019* [Speech transcript]. <https://www.pmo.gov.sg/newsroom/national-day-rally-2019>
- ³Lim, T. S. (2017, April 4). Land from sand: Singapore's reclamation story. *BiblioAsia*, 13(1). <https://biblioasia.nlb.gov.sg/vol-13/issue-1/apr-jun-2017/land-from-sand/>
- ⁴Zainal, Z. (2025). *Singapore surfacing* [Photographic series]. Exactly Foundation. [This document]
- ⁵National Archives of Singapore. (2016, February 2). *Surviving the Japanese occupation: War and its legacies*. <https://corporate.nas.gov.sg/media/collections-and-research/survivingthejapaneseoccupation/>
- ⁶Urban Redevelopment Authority. (n.d.). *Marina Bay: Centrepiece of Singapore's urban transformation*. Retrieved January 29, 2026, from <https://www.ura.gov.sg/Corporate/Get-Involved/Shape-A-Distinctive-City/Explore-Our-City/Marina-Bay>
- ⁷Public Utilities Board. (n.d.). *Marina Barrage*. Retrieved January 29, 2026, from <https://www.pub.gov.sg/marinabarrage>
- ⁸Powell, M. A. (2021). Singapore's lost coast: Land reclamation, national development and the erasure of human and ecological communities, 1822–present. *Environment and History*, 27(4), 635–663. <https://doi.org/10.3197/096734019X15631846928710>
- ⁹Yuen, K. W., Das, D., Tran, D. D., & Park, E. (2024). Southeast Asia's dynamic sand trade and the need for better data.

The Extractive Industries and Society, 18, 101452. <https://doi.org/10.1016/j.exis.2024.101452>

- ¹⁰United Nations Environment Programme. (2019). *Sand and sustainability: Finding new solutions for environmental governance of global sand resources*. UNEP/GRID-Geneva. https://unepgrid.ch/storage/app/media/documents/Sand_and_sustainability_UNEP_2019.pdf
- ¹¹International Tribunal for the Law of the Sea. (2003, October 8). *Land reclamation in and around the Straits of Johor (Malaysia v. Singapore): Provisional measures—Order of 8 October 2003* (Case No. 12). https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_12/12_order_081003_en.pdf
- ¹²Permanent Court of Arbitration. (2005, September 1). *Case concerning land reclamation by Singapore in and around the Straits of Johor (Malaysia v. Singapore) (Award on agreed terms)*. *Reports of International Arbitral Awards*, 27, 133–145. https://legal.un.org/riaa/cases/vol_XXVII/133-145.pdf
- ¹³National Environment Agency. (2024, May 29). *Semakau landfill*. <https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/waste-management-infrastructure/semakau-landfill>
- ¹⁴Tham, D. (2024, September 15). IN FOCUS: Where will Singapore's rubbish go after Semakau landfill is full? *Channel NewsAsia*. <https://www.channelnewsasia.com/singapore/semakau-landfill-full-2035-waste-recycling-trash-energy-incineration-4570466>
- ¹⁵Wee, V., & Benjamin, G. (2010, January 1). *Pulau Seking: A bygone link to the Riau Sultanate* [Unpublished manuscript]. ResearchGate. https://www.researchgate.net/publication/272474835_Pulau_Seking_A_bygone_link_to_the_Riau_Sultanate
- ¹⁶Orang Laut SG. (n.d.). *Orang Laut: The story of Semakau*. Retrieved January 29, 2026, from <https://oranglaut.sg/>
- ¹⁷Connolly, C., & Muzaini, H. (2022). Urbanizing islands: A critical history of Singapore's offshore islands. *Environment and Planning E: Nature and Space*, 5(4), 2172–2192. <https://doi.org/10.1177/25148486211051082>
- ¹⁸Public Utilities Board. (2025, September 8). *Singapore's first polder at Pulau Tekong adds 800 hectares of land* [Press release]. <https://www.pub.gov.sg/Resources/News-Room/PressReleases/2025/09/Tekong-Polder>
- ¹⁹Urban Redevelopment Authority. (n.d.). *'Long Island' (Master Plan 2025)*. Retrieved January 29, 2026, from <https://www.ura.gov.sg/Corporate/Planning/Master-Plan/Master-Plan-2025/Long-Island>

Biography

Dr. Ven Paolo B. Valenzuela is a Research Fellow at the College of Integrative Studies, Singapore Management University, where he contributes to interdisciplinary climate research and science-policy engagement. He is currently working on a national project translating downscaled climate projections into actionable policy through a VR-based risk communication platform. His research interest centers on climate risk, coastal adaptation, and science-policy linkages, with a focus on “advance” strategies like reclamation and floating infrastructure.

ARTIST'S STATEMENT

Singapore Surfacing: Notes from the margins

Zakaria Zainal

How do you take a photograph — or try to make sense of — of something you can't see? As a working photographer trained in the documentary genre, bridging that visual gap of this climate-related phenomena to a general audience proved to be more challenging than I thought.

There is an oversupply of textual information in publications, scientific research and also social media, but some argue that using photography by individuals facing the climate crisis best depicts the extent of devastation endured by communities, wildlife, and the environment.¹ Visual storytelling can shift public perception and behaviours, which in turn influences national and international responses to the crisis.²

Trying to start somewhere

Before working on *Singapore Surfacing*, I was the least bit interested in the topic of rising sea levels for two reasons. One, the challenges faced seem so far away for one person living in a small country when we are faced with more pressing and more immediate matters now. Two, the science seemed too intimidating and, to me, the information was being preached by and to the same choir.

I had a taste of this when I reached out to a local climate advocate group — in our first conversation — who seemingly chided me as I was looking for people who may not believe in this phenomena. They said:

“In the next five years, rapid change needs to happen to stop the worst effects of climate change, and there is frankly no room for climate deniers to continue denying that the climate crisis is real.”

I understand and respect their views but I felt small in my climate change journey. Surely there was enough room to engage with everyone? Perhaps my question is not valid or my own ignorance deserved to be highlighted.

I reached out to another well-known veteran environmentalist and this person turned down my project's approach which is perfectly understandable. The person said:

“I'm NOT among those who enjoy or spend time catastrophising rising seas. I will not contribute to any effort that does so. In fact, I am trying to do the opposite. Trying to help Singapore re-imagine a new kind of shore in the face of rising seas and climate change. This is a lot harder but will give hope for the future. And motivation for people, especially young people, to tackle challenges in positive ways.”

This person made a fair statement but it opened to my eyes to the different approaches and perspectives of rising sea levels from established figures.

Voices from peers, experts

But I was not alone, many of my peers and people I spoke to felt the same way about feeling distant or uninterested about such a topic. For new homeowner Yeo Wei Lun — his public housing flat just beside the Singapore coast — he first learnt of rising seas in secondary school as knowledge necessary to 'pass' his geography class. He said:

“Environmental sustainability issues in our local context doesn't seem like something that's a high priority in our education system, and also in our social or cultural norms.” He added: “Perhaps because we're in a region that does not experience natural disasters like earthquakes, tsunami, hurricanes, we've taken it for granted like ‘it could never happen to us’.”

Meanwhile, Firdaus Sani, founder of Orang Laut SG and an Orang Pulau/Laut descendant, wants to include lived experiences as an important part of the rising seas conversation instead of just focusing on projections and data. He said:

“It's about communities who may not have the language or tools to articulate what's happening in climate terms, but who are already feeling its effects. If we don't listen to them, we risk missing the most urgent signs. Understanding sea level rise through the eyes of coastal communities brings in not just urgency, but also responsibility, especially for those who may have more power to act.”

For university educator Lim Cheng Puay, he argues that sea level rise is a complex phenomena caused by many factors such as the melting of glaciers and ice caps and also the thermal expansion of water. He said:

“The worrying thing for me is that once this process has started it will take a long time to slow down or even stop the process. So, what we are witnessing now is likely to become more severe in the future. This is a cause of concern for me. Though we should still keep trying to reduce our carbon emissions we also need to think about how we adapt to a future with higher sea levels.”

Only during the course of working on this project, I realised that the need for urgent action and also to advocate the importance of sea level rising should start as soon as possible. But the question is, how?

Core principles for Climate Change communication

In my research, I came across non-profit Climate Visuals — backed by international research and expert insights — and they argue that there needs to be more compelling and diverse visual language around climate change³ instead of polar bears and melting ice caps.

Though not all of the principles are useful for this project, I am listing it down here so that it can be a learning point for those attending the Exactly Dinner and Peer Dialog. An important point is that 'classic' images may breed cynicism and fatigue:

1. Show real people, not staged photo-ops: Authentic images of individuals expressing identifiable emotions are more powerful than staged photographs, which can be perceived as gimmicky or manipulative. Research indicates that people prefer 'authentic' images over staged photographs, which they saw as gimmicky or even manipulative.
2. Tell new stories: Less familiar images can help tell a new story about climate change, reshaping the public's visual representation of the issue. Familiar, 'classic' images may be especially useful for audiences with limited knowledge or interest in climate change, but they also prompted cynicism and fatigue in discussion groups.
3. Show climate causes at scale: When communicating the links between high-carbon behaviours and climate change, it's best to depict these behaviours at scale to avoid defensive reactions. Individual causes of climate change, such as meat-eating, may not be recognised as such, and if they are, may provoke defensive reactions.
4. Climate impacts are emotionally powerful: Images of climate impacts can prompt a desire to respond or get involved but can also be overwhelming. Coupling images of climate impacts with a positive or solution-oriented narrative can help people take action.
5. Understand your audience: Levels of concern about climate change determine how people react to images. Images depicting solutions to climate change generated positive emotions across the political spectrum, whereas images of distant climate impacts did not test as well with people with centre-right values.
6. Show local (but serious) climate impacts: Images of climate impacts in places people are familiar with are likely to be most powerful. However, there is a balance between localising climate change and trivialising the issue if the impact is seen as not serious.

Approach to Singapore Surfacing

Initially, I thought that using personal portraiture as a vehicle to drive the narrative of sea level change would translate to a better visual experience for the viewer. My inspiration came from Chinese photographer Li Zhensheng who is best known for his documentary work on the Cultural Revolution.⁴ But I realised that I was not ready — though there are some frames I kept which I feel may be able to tell this story better. Instead, I decided to meet, have a conversation and photograph people who had a closer relationship with the sea.⁵

It didn't help that visually, it proved more challenging as we can't operationalise this abstract concept of sea level rising. For example, in Indonesia, a housewife and her family plants 15,000 mangroves annually to fight the advancing sea on their vegetable plots and rice fields near their 35-year-old home.⁶ We do not have that in Singapore or the change is happening in invisible ways that may not be made visible through photography, yet.

Interestingly, it was only after heading out in a boat, experiencing that feeling of leaving the certainty land and then surrounded by the uncertainty sea, did I achieve more clarity in this project. You can only understand the impact and power of rising seas if your paradigm is sea-first instead of land-first. And that is what I hope everyone present during the Exactly gatherings and any other gathering will understand.

PHOTOGRAPHS

¹ Capturing Climate Change: How Photography Can Tell the Story of a Warming World. Read: <https://earth.org/capturing-climate-change-how-photography-can-tell-the-story-of-a-warming-world/>

² Capturing the Anthropocene: Changing Depictions of the Climate Crisis. Read: <https://www.magnumphotos.com/newsroom/environment/capturing-anthropocene-changing-depictions-climate-crisis/>

³ To learn more on Visuals & media – key insights, you can refer to here: <https://climateoutreach.org/visuals-media-key-insights/>

⁴ *Between Me and Mao: Li Zhensheng's Photography of the Self, 1958-1982*. Read: <https://aaa.org.hk/en/grants/the-robert-h-n-ho-family-foundation-greater-china-research-grant-papers/between-me-and-mao-li-zhenshengs-photography-of-the-self-1958-1982>

⁵ *Island Nation*. Read: <https://www.zakariazainalphoto.com/island-nation>

⁶ Family in Indonesia turns to mangrove trees to tackle climate change. Read: <https://www.aljazeera.com/gallery/2025/4/24/indonesian-woman-turns-to-mangroves-to-fend-off-rising-tides>

Artist Biography

Zakaria Zainal makes meaning of the world through his photographs. His photographs and text interrogate space and memory vis-a-vis visual projects exploring national myopia through the lens of communities on the margins. He is best known for the Singapore Gurkhas trilogy—visual books on the diasporic lives of this proud paramilitary tradition in the Lion City.

Other projects include: vignettes from the 2013 Little India riot; reclaiming living histories of forgotten Singapore islanders; and the declining Malay-Muslim mutual benefit organisations. Most recently, Zakaria was commissioned by the National Museum of Singapore to document the pandemic, which were exhibited in the *Picturing the Pandemic: A Visual Record of COVID-19*.

His visual projects are collected by the National Museum of Singapore and exhibited internationally. Additionally, Zakaria was once an adjunct faculty at Nanyang Technological University and a programme officer at the Asia Journalism Fellowship, where he supports and mentors aspiring journalists from the region. He graduated from Hyper Island and NTU's School of Communication. He also runs a creative studio, Zainal & Zainal.



A view of the sea at Singapore's East Coast beach. Mean sea levels could rise by 23cm in a best-case scenario, or by 1.15m in the worst-case scenario by 2100 according to Singapore's third national climate change study published in 2024.



Author Zakaria Zainal lies on the breakwater at Marina East, believed to be the end point of the Long Island project. This project is a major land reclamation initiative proposed by the Singapore government to address rising sea levels, enhance water resilience, and meet future land needs along the East Coast.



Mohd Zaini Haron, descendent of Pulau Semakau, wades in water and pulls his boat at Cyrene Reef. In a paper titled 'Light limitation and coral mortality in urbanised reef communities due to sea-level rise', the reduced light availability from rising seas may impact the survival and growth of corals especially on turbid reefs.



Asnida Daud, descendent of Pulau Sudong, and her son Qurnia Jeffrey lands on Cyrene Reef which only surfaces during low tide. Asnida believes it is important to pass maritime heritage knowledge to the next generation. In the 1970s, she vaguely remembers her island elders saying that offshore island Pulau Sudong *tenggelam sedikit*, meaning the island is sinking slightly or sea levels may be rising.



Asnida Daud, descendent of Pulau Sudong, forages for *siput*, or small snails, on the coast of Pulau Hantu. Many former islanders believe that with sea level rising, the practice of foraging from their ancestors may disappear. "Once we lose these spaces, we lose a part of ourselves," one former islander said.



Secondary four student Qurnia Jeffrey stands in between a breakwater and the beach at Pulau Hantu. Qurnia is aware and worried about sea-level rising. In his social studies classes, his teacher once said that parts of Singapore can be underwater. He added: "But I forgot what else he said."



Mohd Zaini Haron, descendent of Pulau Semakau, sits on his boat along the West Coast coastline. With decades of experience with the sea, he has noticed changes in the ocean currents which are a little more unpredictable. Some islanders express a growing unease: the weather has become unpredictable, the sea behaves differently, and it's harder to read the signs they've relied on for generations to fish, travel, or even simply plan their days.



Trees along the coast of Pulau Ubin partially submerge underwater during seasonal high tide which can reach up to 3.4m, causing seawater to overflow the banks nearby. According to PUB's coastal protection department, the seasonal floods on Ubin have not shown a worsening trend over the past years in a news report.



Nor Syazwan Abdul Majid, a descendant of Pulau Ubin, stands along the coast of the offshore island, concerned about rising sea levels. "Playing the devil's advocate, I would understand why more effort is taken for the mainland considering this is where almost 99% of Singaporeans reside," he said. To find ways to protect the island from future sea-level rise, according to national water and coastal protection agency PUB, Pulau Ubin will in the future be part of a site-specific study that will be undertaken at Singapore's north-east coast, which will cover areas such as Punggol and Pasir Ris.



A view of the coastline along East Coast. According to former director of the Earth Observatory of Singapore Benjamin Horton, a third of Singapore's land area is only one meter above the highest tides.



New Singaporean citizen Jeremy Chen, from Nanping, China, stands in between the ocean and a breakwater along Pasir Ris beach — a place that played a big part in his upbringing since arriving in 2007. He is aware of rising seas but did not expect it to possibly rise up to 1.15m by 2100.



Veteran university educator Lim Cheng Puay stands near the mangroves at Sungei Buloh — an important place that shaped his interest in biology and conservation. He said: "We should never stop trying to reduce our impact even though the issue of sea level rise looks like an insurmountable problem, nature is also highly resilient and adaptable." Mangrove forests are a natural solution to sea level rise because they can keep pace with rising water levels by accumulating sediment and growing vertically, and they can also help mitigate climate change by storing carbon.



Firdaus Sani, founder of Orang Laut SG and Orang Pulau/Laut descendant, stands along the West Coast coastline, a place where many former islanders continue their maritime traditions. He said: "I think we need to move beyond just awareness into relationship. If we don't care about the people who are most affected — if we don't see the deep connection between sea, land, and identity — we'll continue to make decisions that are extractive rather than protective. The sea is not just rising; it's reminding us to pay attention."



A view of the coastline along East Coast. In 2019, former Prime Minister Lee Hsien Loong said it would take S\$100 billion or more, spread over 100 years, to tackle rising sea levels.



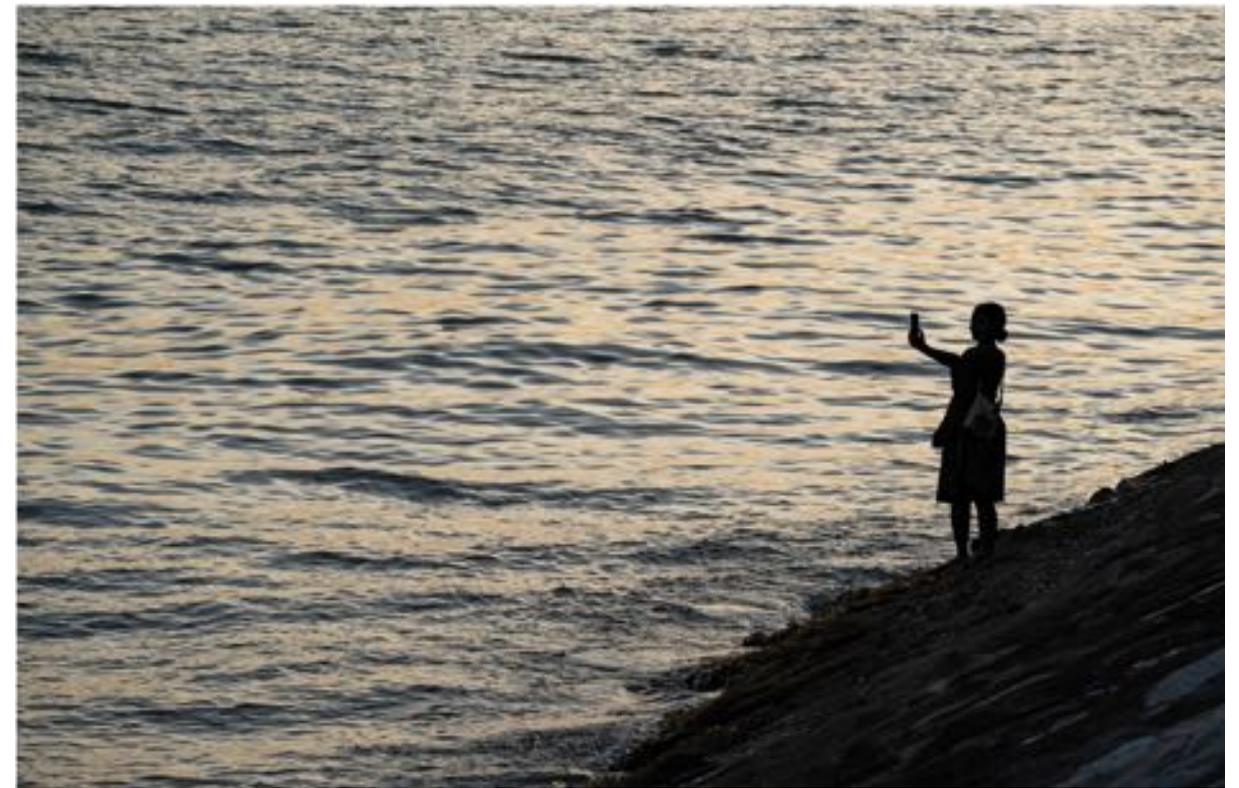
Orang Seletar descendant Jefree Salim navigates the Straits of Johor on his boat, with high-rise properties dotting along Danga Bay in the background. As a community intimately connected to the sea, besides reclamation and loss of mangroves, the quality of and temperature water has changed he said. His community farms mussels and the yield has dropped to 10 kg now as compared to 20 kg a decade ago.



Recent homeowner Yeo Wei Lun stands along the coast near Punggol, with a public housing cluster called Northshore in the background. He said: "As a person living so near to the coast, I see the sea daily and with that it gives me a sense of fear that one day this could really happen, and we'll be the ones to be hit first."



Author Zakaria Zainal sits on the breakwater at Marina East, with the Singapore skyline in the background. Assuming 1.5C of warming, prime real estate in the city worth S\$70 billion (\$50 billion) faces a high risk of flooding, according to Bloomberg estimates using data from a real estate company.



A woman takes a selfie at the edge of a breakwater on East Coast. The Singapore government's approach to rising sea levels is clear. "We are not planning to lose any inch of land permanently," a PUB spokesperson said in a news report.



AROUND-THE-TABLE

Exactly Foundation Residency No. 18

Zakaria Zainal –*Singapore Surfacing*

NOTE

No part of ANY text and material related to “*Singapore Surfacing*” can be used, copied, published or quoted without written permission from the author(s).



DINNER

17th May 2025, 4–10pm
Exactly founder Li Li Chung's home
(East Coast Road, Singapore)

TEA

12th July 2025, 3–7pm
Exactly founder Li Li Chung's home
(East Coast Road, Singapore)

First 24-hr response, sharing with family & friends:
May–July 2025

RESPONSES

Jeremy Chen

FIRST RESPONSE

After listening to everyone share during the session, I felt even more aware of how much the coast means to different people here. One photo that really stayed with me was of Orang Seletar descendant Jefree Salim navigating the Straits of Johor on his boat, with the high-rise buildings along Danga Bay behind him. It felt like such a strong visual contrast, a traditional, sea-based way of life right next to fast urban growth and development. The caption mentioned that besides issues like land reclamation and loss of mangroves, the water quality and temperature have also changed over time. His community's mussel farming yields have dropped from 20 kg a decade ago to just 10 kg today.

Another photo that struck me deeply showed Asnida Daud, oraging for seafood on the coast with her child. This act of foraging is something her ancestors have done for generations, and she worries that this heritage will disappear as sea levels continue to rise and coastal conditions change. Seeing her passing down this knowledge to her child felt both powerful and fragile, like a living link to the past that might not survive into the future. Even without hearing their personal words, these images already show so clearly how climate change and human activity deeply affect those who rely on the sea for their livelihood and identity.

This reminds me that rising sea levels and environmental changes aren't just about physical land loss or higher sea walls. They also mean shifts in ecosystems and real impacts on communities who have lived with the sea for generations. When we talk about climate action, we can't only focus on protecting infrastructure or economic interests. We also need to consider the people and cultures whose ways of life are disappearing quietly, often without much attention. It is a strong reminder that these issues are not just global or scientific, but deeply human too.

The climate crisis isn't just about rising temperatures, it affects almost every part of our lives, from food security to health, and even the way we move around our city. Here in Singapore, the effects might seem less obvious at first glance, but they're very real. The increasing heat, heavier rainstorms, and more frequent flash floods are all connected to climate change. It's worrying to think that we could face much more extreme weather in the coming decades, and that these changes will directly affect how we live and work. The idea that sea levels could rise significantly by 2100 and that we might experience stronger monsoon seasons makes me realise how vulnerable we actually are, despite all our infrastructure. It's not just an environmental issue, it will impact our economy, our daily routines, and our overall safety. It also makes me think about how Singapore is so dependent on imports and global connections;

climate disruptions overseas can easily ripple over to us. All these factors combined make the climate crisis feel very urgent and personal, not just a distant or abstract threat.

Beyond just the coast disappearing, it's about how people's livelihoods will be affected, how daily life and movement around the city will become harder, and how deeply this will impact families and future generations. Seeing images of the mangroves already submerged or fishermen struggling to reach the sea really highlights that this isn't a distant problem. It's happening now, just not always visible to us.

I know there are large-scale plans for coastal defences and more environmentally friendly approaches, and that we invest a lot into research and infrastructure. But honestly, I feel like it's still not enough or not enforced strongly enough in daily life. The concept needs to be drilled into people's minds through constant, clear reminders, not just abstract facts but real, relatable stories and examples of what might happen to them and their families if harmful and wasteful behaviour continues. It has to feel personal, not just like a policy or a faraway problem. Maybe we need more art projects, community activities, and direct engagement that make these risks tangible and emotional, rather than just technical.

RESPONSES COLLECTED BY JEREMY

1. Marehito

What aspects of climate crisis are you aware of and concerned about?

Mostly I think about heatwaves and food shortages, but seeing the photo of the fisherman on his small boat at West Coast made me realise how much the sea means to different people. For me, climate change always felt like a faraway issue, like something that affects polar bears or countries with hurricanes. But after looking at these photos, I started thinking about how it's

not just about weather getting hotter. It also affects food sources, work, and even culture. When people who rely on the sea can't predict currents or find enough catch, it's not just an inconvenience. It's their whole life. That really hit me.

What aspects of rising sea levels are you aware of and concerned about?

I always knew sea levels would rise, but I assumed it was something that would happen slowly, maybe after I'm old. After seeing the photos and hearing that some coastal communities already struggle with changing water conditions, it feels much closer. If these fishermen are already seeing lower yields and more unpredictable conditions, it means we're already in it. It's not some problem for our kids only. It also makes me think about all the places I like to visit, like Changi Beach or East Coast Park. These places might look totally different or be underwater one day. It's sad to think that the simple joys we take for granted, like going to the jetty with friends, might not always be there.

What do you know about Singapore's plans?

I know we have some big plans, like building sea walls and raising certain parts of the coast, and that the government is putting a lot of money into these projects. But to be honest, I feel like most of us don't really understand what these plans mean day to day. They feel very top-down and technical, and it's easy to just assume someone else will handle it. The photos make it clear that these are not just engineering problems but social and community issues too.

What needs to change?

I think there's too much focus on "we are safe" messaging. It makes people feel like there's nothing to worry about personally. But seeing these photos, I feel we need more human stories to make the message real. Maybe we should have more interviews or short videos featuring people directly affected, like the fishermen or

communities near the shore, to help us connect emotionally. We could also do more activities where people actually visit these coastal areas, so they can see and feel the changes themselves instead of just reading a headline. And I think more young people should be included in planning and discussion, not just experts and policymakers.

Anything else?

I don't live near the sea, and I don't work outdoors, so before this I thought it didn't really concern me. But after seeing these images, it made me realise it's not just about losing land or building higher walls. It's about people losing their ways of life and us losing small but meaningful parts of our culture and daily life. It feels like a wake-up call that we all have a role to play, even if it's just changing habits or paying more attention to how we treat the environment. And that realisation, for me, is already a big first step.

2. Ning

What aspects of climate crisis are you aware of and concerned about?

Honestly, I'm more worried about how the climate crisis affects everyday life, transport, prices, even just being able to walk outside without melting.

What aspects of rising sea levels are you aware of and concerned about?

I'm concerned that all the nice coastal hangout spots might be gone or closed off. When I saw the photo of the woman taking a selfie at East Coast, I thought, next time maybe that slope won't even be safe to stand on anymore.

What do you know about Singapore's plans?

I know we have plans, but they always sound very technical.

What needs to change?

Communication has to be more down-to-earth. Instead of big numbers and technical terms, use more stories or images to make it feel closer to us.

Anything else?

We need to rethink how we interact with nature, not just go there for photos but actually understand what's happening.

3. Jay

What aspects of climate crisis are you aware of and concerned about?

I always thought about the climate crisis as something happening overseas, like wildfires in Australia or ice melting in the Arctic. But recently, I started noticing how it shows up here too, like hotter days, more sudden rain, and even food prices going up. It feels like nature is becoming less predictable, and I find that quite unsettling. Even simple things like going out for a run or hanging out at a hawker centre feel different when it's so hot or when there's heavy rain out of nowhere. It makes me realise that climate change isn't just an environmental problem but something that changes the way we live day to day.

What aspects of rising sea levels are you aware of and concerned about?

I used to think rising sea levels only meant faraway islands disappearing, but when I saw the photo of the mangroves half underwater, I realised it's happening here too. Mangroves have always felt strong and protective, like a natural shield for our coasts. Seeing them struggling felt quite sad, almost like they're slowly losing their fight. It also makes me think about how much we depend on these natural barriers without really appreciating them. I started wondering what happens to places we love, like East Coast Park or Changi Village, if the sea keeps creeping in. Will we lose these places completely, or will they become something totally different?

What do you know about Singapore's plans?

I know the government said they won't let us lose land and have plans for sea walls and other defences, and there's a lot of research and money put into it. But seeing these photos made me feel

like nature might move faster than our plans can keep up. It made me question whether we are preparing enough or if we're just assuming that technology and money can fix everything.

What needs to change?

I feel like we need more honest conversations, not just about economic losses or how much land costs. We always hear about protecting buildings or ports, but we don't hear enough about how rising sea levels will change lives, traditions, and how people feel about their homes. We need more personal stories and visuals like these photos so people can actually imagine what might happen. Maybe we need to involve more youth groups, artists, and local communities to find creative ways to talk about these issues so they don't feel so distant or technical. I also think it's important for us to see these places with our own eyes, not just look at photos or read articles. When we actually visit and feel the changes, we start to care more. After seeing these images, I feel like I can't just brush off climate issues as something for future generations to handle. It feels more immediate and personal now, and it makes me think more seriously about how my small choices connect to the bigger picture.

FINAL RESPONSE

After speaking to everyone and hearing so many different perspectives, I realise that the climate crisis is not just a scientific or environmental problem. It is deeply personal and affects each of us in ways we might not fully see yet. Whether it is a fisherman adjusting to unpredictable seas, a young person worrying about losing simple moments by the coast, or someone quietly noticing hotter nights in their neighbourhood, these stories show how interconnected we all are with our environment.

The photos acted as powerful mirrors, revealing what is already happening and what we stand to lose if we continue on the same path. I feel that beyond policies and large-scale engineering

solutions, what we really need is a stronger emotional connection to these issues, something that makes us feel responsible and invested rather than distant or helpless.

Listening to these personal reflections reminded me that change starts small, in our everyday choices and in how we talk to each other about what we value. It made me more certain that the way forward should involve not just technical fixes but also through real stories, and shared experiences that bring these challenges closer to home and make them impossible to ignore.

RESPONSES

Lai Ah Eng

7 July 2025

Main points triggered by our first meeting on 17 May 25

1. Relationship with the sea (also large bodies of water)
2. Fears and anxieties of the sea and rising sea levels

1. Relationship with the sea (also large bodies of water).

- Growing up in inland Kuala Lumpur, I saw the sea for the first time at age 12 when I went to Port Dickson with friends. Before that, I saw only land and forest (I could see the Main Range in the distance from home), and for water, I was exposed to River Gombak in town, two fish farming ponds in the neighbourhood and two disused mining pools further away (and with stern warning from my mother that we should never follow the boys to play near them - we might drown).† I fell in love with the sea at Port Dickson (playing with water!† waves!† shells! sand!† sunset!), and have always looked for it, and tried to live near it. Sea (and forests) are parts of nature I have always grown up with.
- I also grew up with songs referring to the sea, such as The Pearly Adriatic (later learnt this is a Yugoslav song), Over the Sea to Skye (Scottish song) through singing classes in a Christian mission school. I also learnt local regional songs related to the sea such

as Dayong Sampan and Ikan Kekek, through Radio Malaysia school singing programme.

- I taught myself swimming because I loved water.††Learnt from studying books on swimming borrowed from the library.† Later,I learnt sailing (pre-university), then windsurfing and diving when I earned income as a working adult. What did I learn from each main activity ñ not to be afraid of water and the sea, but to respect bodies of water and to know my limits while learning to handle the elements and master techniques.
- When I had my two children, I made sure they learned to swim in the sea. We lived in the east, Marine Terrace, by the sea. I put my baby in seawater by her 4th month. Every Sunday was beach day.† We swam and paddled our inflatable boat. (Lunch was always chicken rice).
- I was secretly pleased that my daughter took up sailing as a sports activity when she entered secondary school.
- Our family school holidays were often spent in Pulau Besar, Johor, where we rented a house or chalet by the sea. Did snorkelling, sailing, swimming, diving, rock climbing, beach combing.

- Nowadays I swim in the sea for exercise at least 2-3 times a week, besides walking or cycling by the beach. I also check for otters in the east coast as part of an informal citizen science group (for otters) and do otter photography.
- I see sea sceneries everyday ñ of waves, weather and seasons and their changes e.g. monsoon; sunrise and sunset, clouds, moonrise; special activities and events (races, weekend sailors); people enjoying swimming and playing at the beach.
- Travel plans: Seas (also mountains) have always beckoned.† My future plans are to explore in greater detail Nusantara and islands in Southeast Asia.
- Historical connection 1: living by the sea looking in the direction of Changi and seeing the Riau Islands, I am filled with a sense of history. Examples: battles between Dutch, Portuguese, Achinese, Johor Sultanate and Riau islanders fought off the coast of Changi; the Maritime Silk route passed through here;†now big ships sailing or anchored at sea in the world's busiest port and maritime lane ñ I see them from the beach or my balcony!
- Historical connection 2: Historical connection with the sea in my family ñ my own parents' migratory journeys were in boats from Hainan to Singapore; my mother's stories about living by the sea and diving for oysters and foraging for clams. (The classic communist opera Red Detachment of Women is based on women divers in Hainan Island and I see my mother's fearlessness as a sea-diver). Living by the sea in my last season of life.† I will live in my home in Marine Terrace facing the sea forever.† When I die, I want to have my ashes scattered over the sea (and in the forest -the other part of earth I love)

2. Fears and anxieties of the sea

- So, I was never scared of stretches of water. The stormy sea can be scary but† I have no fear, as I know the storm always passeth. How not to drown — I learnt to swim, also sail; not fight the big waves; seek shelter in protected bays; return to shore quickly, wait for storm to pass and wind to die.
- I am not scared of big fishes and sharks because of diving, but I am scared of sea cruises because I watched Poseidon Adventure when young and the overturned ship and the siblings who drowned are permanently embedded in my brain.
- So, am I scared of rising sea levels? I live by the sea next to Siglap canal just 50m away. Not scared where I live as plans are already in place with construction for flood controls. We have the resources, technology and political will to deal with rising sea levels. But people must be educated about rising sea levels and climate change and relationship with human behaviour (e.g. excessive consumption patterns, deforestation, mining) and impacts on nature and the earth.† I am a little concerned about downtown and all those buildings with basement car parks and rooms - what features and plans are being developed?††

I am also more worried about other places, especially low lying islands ñ how will their communities survive?

RESPONSES

Catherine Lim

SINGAPORE SURFACING “THE GREAT RECLAMATION”

When 7-year-old Siok Mei attended her first class in primary school, the teacher in her introduction tells them where they are sitting was once the sea. Her reaction is not of wonder but visceral, it fills her with terror.

Siok Mei is one of the main characters in Rachel Heng’s historical novel *“The Great Reclamation”* (2024).

“I went to Ngee Ann Primary in Marine Parade, which is built on reclaimed land. And I remember being in probably Primary One, and the teacher saying, “This floor that we’re on right now — this used to be the sea.” This idea that the land didn’t used to be there until quite recently, or that you could make land where there wasn’t land seemed really exhilarating, but also a frightening thing for a child to hear. And I think that feeling kind of persisted throughout my life in Singapore, because you do see the landscape shift so much when you grow up here, and probably less so in my generation, much more so in the past.”

The terror for Siok Mei is not just physical but also existential that one day the shifting and unpredictable tides of the sea will *“(re) - surface”*

All the continents we know today from Antarctica to Australia were once submerged under water

albeit many millions of years before mankind existed.

The most recent ice age of the past two millennia has surfaced but now we have humans — capable of great destruction in the “pursuit of a better life” -added to the forces of nature. Vivienne Wee noted during discussions at Exactly Residency 18 with photographer Zakaria Zainal that the region we live in was also once submerged under water. What emerged is historically known as the land and waters of the Nusantara, or Malay Archipelago, culturally rich, diverse and enlightening for me recently about the ways of the people of the sea.

One of the central themes of Heng’s novel is displacement, in the case of the Orang Laut/ Seletar as there are popularly known today, it is displacement of a an existence that has defined how they “eat, pray, love” -without having to travel from Italy to India and Bali if you get my drift.

The sea is their wisdom, primary and primordial but problematic for modernisation blind to what lies beneath the iceberg as this illustration succinctly captures.



(credit unknown from FB)

Displaced to the land, they attempt in pockets of the shoreline of our island to re-live the traditions of going out to sea to forage in their traditional boats. But they are weekend warriors holding full time land jobs, and sometimes they are unable to repair the boats. Residents and beach strollers have complained that unrepaired boats are unsightly. And once when the spirits around spoke to them and anchored their lives, many displaced have been “encouraged” to assimilate and convert to Islam.

Yet the sea runs deep in their veins through oral traditions of passing down knowledge from the old to the young, and visiting the islands their families once inhabited whenever they can.

Two photos stand out for me for its “awkwardness” of pose and location. That of Firdaus and Wan, the young advocates who have made re surfacing of the rich wisdom of sea culture and transmission to the public, central to their lives. Zainal captures them, I felt awkwardly. On the shoreline at the cusp, they Firdaus and Wan were told to strike a

pose and interestingly both have their hands in their pockets. It works for me. Both look like they are thinking, and you know how oftentimes hands are tied in planning great things. But they are just pockets.

The “action” photos are postcard perfect. Then we have two photos of previously “outsiders” to island life. And the indomitable, stubborn face of an educator who is unrelenting in his prescription but also because he believes that nature is resilient and adaptable, and our choices cumulatively will have a positive impact on climate change. They complete the album.

Zainal places himself in an uncomfortable reclining between stone and water which speaks to me of his initial attempts to get a grip on his residency. He should take a photo of himself after the residency is over.

The last photo is she taking a selfie or the sea? It is not an existential question, or is it?

Postscript: Wan wrote a series of well-articulated Instagram posts when he read about plans to “modernize” Ubin. Firdaus has cause to celebrate for a pulling off the inaugural Hari Orang Day with max public exposure, his reclamation of his roots has taken off, congratulations.

RESPONSES

Luqman Hakim Bin Othman

12 July 2025

FIRST RESPONSE

18 May 2025

My take on the climate crisis

The climate crisis has been something very much present in my life, but conveniently ignored because of my limited affinity to the sea & islets surrounding Pulau Ujong. My concerns pertaining to the climate crisis are triviality, utilitarianism & egotistical factors (e.g., “why is the weather so hot, flooding again in this area?”).

Picture #15 reminds me that the climate crisis would inadvertently erode not just physical geopolitical boundaries, but that of ancient anthropological natural history.

On the state mechanism

The government has been doing a great job to mitigate the negative tangible effects of the climate crisis, as seen in the BTDC, expansion of BTC, Bidadari & Stamford detention tanks, Stamford diversion canal, and the long island project. This sense of apathy puts me in a hard place, as to how I could myself act on the subject matter at hand.

On the project

Picture #8 is rather erroneous as the trees are that of the mangroves. The message being put forward might be interpreted on a sour note by botanists

Picture #10 emphasizes on the “revised” coastline of Pulau Ujong, when in actuality there are various pre-reclamation coastline which are still present in Singapore, such as Sungai Dekar Beach (Beaulieu Shoal), which is closer to home as that is where my late grandparents and mother (during her young days), were situated at.

RESPONSES COLLECTED BY LUQMAN

1. Kimberly Lim, Ricemedia

3 July 2025

Musings

I hear not so much in Singapore's context, but I hear a lot of what's happening overseas. About how Venice is sinking, how micronations are sinking. Small islands which are at risk of sinking, such as Tuvalu. These few who are really struggling. That's the ones that I always hear about in the media, but then not so much in Singapore's context. So at this rate, I am not so sure about how Singapore might be affected by climate change, besides the rising temperature every year. #16 takes me back to questioning how much of our coastlines we actually have, how much of nature we have encroached on at the expense of development. There are a lot of cases where we clear out forests to make way for development, where we also complement these developments with land reclamation to accommodate for housing. On one hand, I understand that we need

housing as I am also a person that is trying to get a BTO. So it's somewhat like a trade-off, we need more housing, but at the same time we can't destroy all of the forests or coastline for the sake of housing. And this struck me, because we have all the greenery and then suddenly you have the BTOs popping here and there. It almost feels like an eyesore, and I am kind of really curious what all these places were like before development. About how the natural landscape looked before we interfered in them.

Closer to home

I feel that in Singapore, I don't see the rising sea levels as a big concern because we are not one of those nations that is in immediate danger of being swallowed by the sea. I just know that overseas, there are plenty of micro nations which are currently in dire crisis. What I always observe in the media is how these countries are struggling. The headlines are very doomer and it puts me in an uncomfortable position on how we can act on the subject matter.

More exposure?

I'm certain I haven't gotten much exposure on this topic. I haven't been exposed to any campaigns both private and public. As a person from the media, I feel it is because when we cover the climate content, it doesn't Garner much interest from consumers.

Improvements

I feel Zakaria Zainals work is great, and it touches base well on the human aspect, such as when he featured Indigenous people of differing ages, and islands. There was someone from P. Semakau & P. Hantu, so it's nice to learn about the perspective of these people. A lot of us are unsure about their existence. When you mention P. Semakau, majority of people will think about the state's landfill, when in actuality, there were Indigenous people who used to live there in the past. I feel it would be good if more people could see these photos.

When I see the photos, it reminds me of the importance in preserving these islands and its identity, the nature, & rustic identity of Singapore which should be preserved.

2. Syaheed Ismail, SCF

4 July 2025

It's about me!

My main concern is the weather, the heat is unbearable and it has been affecting my training performance on the bike. What else is the majority of Singaporeans?

The coast concerns me!

I'm concerned about the rising sea levels especially because Singapore is relatively flat and a slight increase could result in a significant detrimental impact. So I'm worried that in the future, probably about what will be happening in 50 to 100 years. #8 speaks well on my behalf, as I am shocked that the trees are getting swallowed by the rising seas (sic).

I trust the government

I am only familiar with the long island projects, which the establishment is doing a great job to address concerns to protect Singapore's interest. #17 is a stark reminder of what we could lose if apathy is the only emotion in addressing rising sea levels.

Improvements?

I feel how the pictures can be improved, by including more representation of people from the older and younger generation. Like people in primary school, silver generation, to also include them into the discourse.

3. Sufian Rahman, Deliveroo

4 July 2025

Pollution a problem?

Climate change is very much related to pollution. The latter preceding the former.

Recycling campaigns have been in effect for quite many years now, but people are still polluting both directly and indirectly. The current EV fad has a huge role in these issues. Even the media has covered how lithium mining has a nefarious effect on the environment. Despite the coverage, people are still using EVs as a mode of transportation. These problems not only affect the climate, but are also hazardous to humans living on the margins of society, and endangered flora and fauna.

Everyone is affected

The issues at hand resonate well with me & my family members as we can already feel the rising temperature. #1, #10, & #19 reminds me that despite our climate crisis, and rising sea levels. The climate crisis results in weather patterns that often go against the weatherman's predictions.

When glaciers and icecaps melt, the sea level rises too. What will happen to Jakarta then (wife is from here).

I think the government has the rising sea level problems in control, due to their long term master planning, and through land reclamation.

Privateers

I feel that the big industrial players should also have an active hand at this problem. So the author could actually allow these stakeholders to address the problems responsibly, through collaboration.

4. Yasmin

4 July 2025

First thought

Global warming comes to mind first, such as how we need to protect the ozone layer, and ensure it is not depleted again. And how this problem comes about, is because we are technically complicit about it. If we are not made aware of this, then it is going to be detrimental for the planets & ourselves.

Continued

I am aware about the rising sea levels, but I am unsure about how it affects Singapore, other than the risks of flooding of coastal hinterlands. But of course, with access to mass media, what I am aware of, are the risks towards micronation states, when ice caps start to melt. So I stress that I am unsure about Singapore's contingencies to combat the climate crisis.

It starts at home

Conservation in general should start at home, at the grassroots level, and not from a top down, or nanny state angle. This way the whole outreach will organically function from a ground up approach, giving every stakeholder an opportunity to participate in addressing the rising sea levels.

Back at school, we also have covered topics on conservation in the preschool setting. This is so we could teach children about the importance of recycling, reducing consumption, and expressing everyone's differing opinions. We also collaborate with SembCorp.

5. Lerhan Raushan, SSS

9 July 2025

Unsure but curious

In terms of what I know, as I don't have formal research experience on this subject, less of reading media headlines, my main concern about the climate crisis is rising sea levels. About the melting ice caps, I always question and ponder to myself about what is going to happen in the next 5 to 10 years. Other than the rising temperature, how is it going to drastically contribute to social issues at hand. Natural disasters are happening, individuals living in coastal towns are being affected, and of course as a Muslim myself, are these part of the end times? I have this dread of apathy. Are we doing enough to engage this topic? Is there something I could do to delay the inevitable? This brings me back to #13. Like if the sea level rises, will the legacy of those living on the fringes

of coastal areas be affected? If the inevitable happened, what, where, and when will they be engaged? It becomes a matter of succession as the inevitable is going to happen.

We can't stop it

The rising sea levels are going to hit those people first, and hard. It is going to be tough for them. It seems macabre, they have lived their whole lives, throughout multiple generations, but it is going to happen.

I recall

Closer to home, this reminds me of my late great-grandmother who resides in Malacca. I feel that if the sea level rises in the next decade or so, some way or another I will be affected by this. Will the rich history of Malacca be lost, what will happen to her house then?

State apathy?

I don't see much news about climate change or rising sea levels. I may have missed it, so I guess I have not been reading the news enough, and thus unsure about the situation in Singapore. A sense of apathy? I couldn't find a better word. But this doesn't discount the elephant in the room, it will happen. As I, a 26-year-old adult, would one day have kids too. I can foresee how detrimental their future would be, and if someone doesn't speak about this now, who will? I know there are some thought leaders engaging this topic now, both private and public, so I feel representation at the regional and international level is important. But I need to be honest & reserved for this question. I need more legroom to better understand this topic.

To the author

I have never seen these photos online, so I feel it is important too, for the author to engage the public through the social media space, and then subsequent thought leaders. Not just photos, but sound bites, and videos. This would open up a wider age group. The first step to understand and

act on the climate crisis happens at home, where said action will have positive rippling effects in the general social contract. We are essential stakeholders, to ensure that the sea levels do not rise exponentially. Climate change will continue, therefore we need to slow the process down to our best knowledge.

6. Nishath Kumar/Nishilia Aishwarya Bernard,

LASALLE College of the Arts

9 July 2025

The duality of man

The use of plastic, rising temperature in general, global warming, ice caps melting, the carbon emission towards the environment, generally. I think the one closer to my heart is how everything is interconnected, but specifically for rising sea levels, it also encompasses how it is impacting the flora and fauna. If you were to see the water quality now and then, it's very different now, such as Lazarus beach. And, I think it's just concerning because Singapore is also an island. It's part of our identity. I think recently also there was an oil spill, and how recent, and how bad it is, it's so "sayang la". And also on Pulau Semakau, they have to burn the garbage which contributes to the carbon emission issue. So I find that very ironic, like everybody and the government says that we need 3R, but at the same time we are complicit in this issue, we are guilty. So like, what's the vibe, what's that all about. Where are we at, I feel like we are all not on the same page, even though we are all trying to achieve one thing, but there's just so many loose ends! I just feel at a loss!

What's in for our future?

To be very honest, I'm not aware how specific it is when it comes to rising sea levels. I think people talk about it, but I'm not aware before looking at the photos that by 2100 the sea will rise by 1.15m, I wasn't aware about this, I'm just learning about this now. I think that goes back to many Singaporeans now, we know what the problems are, but we don't know how specific or how

concerning it is to Singapore itself and its identity. Because the beaches and the sea are very close to homes, such as the photo in Punggol, so people have no idea how much it is going to affect their livelihood. So I think the problem with me and Singaporeans is that we don't know how specific and serious the issues are. So I think a lot more awareness needs to be raised about that. Such as grassroots awareness.

Medium's of communication

I think a lot of the environmental issues that we know are from social media, a lot of the approach when it comes to environmental issues can be very preachy. It can be very like, uh, "we have to save, we have to save the environment". And I think a common thing we hear is we have to save the environment by a specific year, which I don't remember what it is. I remember that somewhere in the world, there's an environmental clock, similar to Singapore's Green Plan 2030. I'm uncomfortable with the deadline. The deadline is 2030. That's the deadline that we get to reverse the effects or whatnot?. But how do we do it? You know, like everything, is just so generalized. I think it's not much effort being put into raising awareness. I mean, like, yeah, we are aware. But like, how, what can we do as residents, as people who are living here, how do we help combat the climate crisis and what is the government's angle? Are higher officials doing their part to combat the climate crisis? So it's very like, we're all in the playing field, but we don't know how to play.

Closer to home

About Singapore's plan to address the rising sea levels, I know nothing. I don't think I'm aware of it. I don't think I have seen anything in the papers or the news or anything, but looking at the photos, it sounds like this to me. Currently a plan is going on, but in terms of the specifics, I'm really not aware, totally zero. That's the thing. It's a bit difficult to answer because I feel like, I think, like what I mentioned before, I feel like a lot of people are just not in tune with the issues

with the environment. One way to address this is to publish in the news frequently. Implement rules within each community within each GRC or whether or not. A lot of people would tend to shrug it off. The issues are emergent, so things need to be done for people to work together with the government? Um, on one hand, be aware of the rising sea levels and other things to do something about it, because right now it's just that nobody knows what's happening, you know? I think that's it. That's the main issue with this thing with Singaporeans. Nobody knows what he's doing anyway. If there's something that's being done about it, we also don't know what's happening exactly.

Confrontational

I'm only familiar with beach clean ups and the long island project, and these photos are a way for him to establish that there is an emergent need to change or to combat the issue of rising sea levels. I would say. I don't know if it would be nice to see past and present photos to see how different the sea levels were, how different the water quality is because I know the murkiness is also affecting the quality of life. Yes, the darker it is, and it's not very, uh, good for sea life. Because it's not only just the sea life, but it's also affecting the plant life that lives on land when the sea creeps onto the land and whatnot, right? So, I feel like it needs to show some sort of, let's say, not gory, but terrible consequences, you know? I feel like. It needs to be more confrontational. Yeah, oh, that's the word.. Okay, yes, that's delicious. That's the way, it needs to be more confrontational. I absolutely love the photos, but it's not as confrontational as I hoped it would be

It (Photo #2 Author Zakaria Zainal) feels very poetic in a very confrontational way. I also like, what is it for, I think, because, like the sea is swallowing him.

This one is also quite confrontational (Photo #3 Mohd Zaini Haron). It's, uh, you get a very big

view of how the sea, the water quality is. And then there's a development in the background (Pasir Gudang?). When it comes to looking at all these photos, we're looking at the general public, we're looking at people of all ages. Singaporean public, or like the mindset they don't want to think too much. We should also include the older generation, like kampung people and whatnot. So, maybe reflecting that? Would also be nice. A lot of people. Feel empathy. A lot of people feel. They feel like they need to do something, mainly because of their experiences, so being more confrontational while still at the same time attuning with the people's lived experiences. I think that's what can be done.

A few days in Quezon

I went to the Philippines to learn about performance and the environment, conserving the environment, but also doing theatre and learning how to send that message across. So, a very short summary of what we did, we went to the Nature Reserve, we went to the park. There were six leaves on the ground we took, this is Quezon City. Yeah, we went to the University of the Philippines. At the end of that one week, we learned, like an improv, not say, improv, like a device like we create our own. Uh, attuning to the environment. One of the pieces that we watched was by a masters student. Her grandparents were from this indigenous tribe. So in this tribe, they were from this village that was very far away from hospitals. And so what they did to create medicine was they took like coral from the reefs. They took melted wax candles. They took sea anemones and other marine life. So they created healing wax, for healing purposes. It's not medicinal in any way, but it's therapeutic in that sense, and it's what they did. Maybe so, in relation to performance in the environment and to conserve the environment, she took all those stories from her grandparents and her indigenous tribe, and she literally made the healing wax right in front of us. So, if anybody who's watched a documentary on this, that's

from these same indigenous tribes who know the practices of their grandparents. I wasn't from those tribes, i had no idea of this experience, but I was reminded of how my mother took jasmine flowers, and she would grind the jasmine flowers, and that reminded me of my past, so I feel like attuning to people's nostalgia and their lived experiences can be one way of raising that awareness and being more confrontational about how emergent the environmental issue is.

Post script.

Marine life and the coastline is very much our identity. You know, it's part of who we are one way or another. We all will go back to the sea.

7. Alvan

9 July 2025

Concern me? Concern me can mean two different things. Okay, because the things that I know are based on the things that I've read recently. A lot of the climate crisis can be explained by business practices, especially with, like, you know, the use of plastic and everything, which is a whole other conversation because they're trying to push that as a consumer fault rather than a business fault, which is a bit like, what are you doing, but it's really just for optics, so I mean, well, the most famous examples that you can probably think of is like the switch from plastic straws to paper straws or like the Disposable Cutlery and all that you know, recyclable materials on their packaging and everything like that. It's like they were recyclable before, but they're making a big deal about it now because of optics, but also because maybe they are trying to foster a community of change of some sort. If you want to have a good interpretation of that, that would be it. A lot of the business practices that are used, especially in like bigger corporations, especially in, let's say the FNB industry, for example, the way that they process their food, the way that they package their food, you know, little factories and everything

that they use to make all of the happenings right, especially when it goes to like shipping and everything, the more efficient ways to do it. There are alternatives to do it that are more eco-friendly, but they don't do it because, well, it can be one reason or another. I hear some of the reasons would be like, oh, they have a contract with so-and-so company, and they have stakes in like, let's say fossil fuels or whatever, so they don't want to switch to alternatives, or like, maybe the material that they're using, you know, they already have a certain contract with this certain manufacturer or whatever, and so they can't break that contract and switch to another manufacturer, which has a more eco-friendly solution. Or maybe they just don't want to because it's more profitable for them, because maybe the eco-friendly solution just doesn't have enough profit margin for them to justify making that switch. For them to justify something like that. It's always one reason or another like that. Another way, there's like a lot of the marketing, a lot of PR around climate change can also be seen in, let's say, public transport versus private transport. So, if you take public transport, you're like, oh, okay, you're using, you know, the "eco-friendly" way of going around. Yeah, that's why it's called public transport, right? But it's also like a very government solution for it, but if you take private transport, you know, your cars and everything, then you need fuel for that. Obviously, you need some sort of carbon emission for it, and I get that there's like, you know, EV cars. Now, they're EVs now, but the default is still fuel. You get what I mean? Because it's still doing something that's not renewable, especially with non-renewable energy.

Also a huge thing that, like people don't realize, like when EVs are marketed, you know, it's lithium battery. It's electrical. It's "green" like, you don't use fossil fuels or anything like that, but you do know, it's not just like a renewable source of energy. Electricity is not exactly the most renewable thing ever. You still need to get that

from somewhere, and in this case, it's lithium. And the way that they get lithium is by strip mining, which is also by itself a whole different problem for the Earth.

The way that it concerns me can be twofold, so it concerns me as in how it affects me, right? But also, how does it like, how does it affect me mentally, but concern me, like, how does it concern me as in, what do I have to do about this, or what do I want to do about this or whatever? So? Based on which one you would take it, I guess. Um. I also talked about this to my friend the other day. The way that companies push climate stuff onto consumers. It's also a bit of like, I wouldn't want to say insidious or malicious, but there's definitely a hint of something odd going on with that sort of marketing. Because. Clearly, like you said, there's hypocrisy with the bigger businesses. Like, maybe the top seven companies in the entire world could be responsible for, like a huge chunk of the climate problem, maybe like 80% or something of it, and only a very small percentage is on the consumers themselves, but they're pushing it onto the consumers because of optics, and because they're pushing it onto the consumers in the form of like paper straws and weird cutlery that we're supposed to use now. They just don't give straws anymore, or they just don't give X and X anymore. Or they were switching to shittier packaging, so you know what I'm talking about. It's always these daily life things. I also feel like it's giving a bad impression of this whole climate issue to the consumer because it's inconveniencing their daily life. Because it inconveniences the consumer, the consumer links this as a direct cause of the climate issue, which it shouldn't be. But like, because we see it as inconvenient. We start to see the climate issue as inconvenient by proxy, and because we see it as inconvenient, we just stop thinking about it because we don't want to think about it. We want it out of our faces. We just don't want to face it. A lot of the time. It really feels a little bit like

social engineering, but I don't really want to say that. That's definitely a thing that they're doing, but it might be a part of it. But you get where I'm coming from, an unintended side effect, but one that benefits the business.

When it comes to rising sea levels, a lot of people who make the decision making about climate change and especially climate issues about sea level, they don't know what it's like to see the sea level rise, like generational changes and all that you know. It's like your grandfather will tell you that the ocean was not there, the last time I remember you look at that shoreline, it's like that is higher than I remember it. And like, when you think about it that way, it kind of seems a bit funny. But the reality of it, is that sea level rise is a very gradual thing, but because it's very gradual, people don't think of it as an immediate issue? But that is a bit of a problem because it is quite an immediate issue. Sea level rise doesn't only affect us. It also affects the ecology of the sea and everything around the shorelines. And it's not just like coastline cities, or like you say, micronations or islands, or anything that's near to the sea. The sea would mess up things Inland, things that mess up on the shore would mess up everything beyond that shore. So, if the sea level rise gets bad enough and the ecology changes bad enough, you can see fish species just wipe out. That is a very possible thing that could happen, especially when it comes to like aquatic plants. Aquatic life in general really is very much. I would say not the most in danger here because I would be concerned about the ones living on the shorelines and everything like that, but not just thinking about humans, just the general animal population and plant population would be kind of a threat, because what are the plants going to do, pick up their roots and walk away? They can't do that, so, like, any plants that are on the shorelines and, if the sea level rises high enough, they are at risk of extinction. They are definitively at risk and you can see a lot of these sorts of especially precious species or

species that might be endangered, just wiped out because they weren't able to do anything about this. It concerns me because I mean, even though I live inland, which means that I don't really get many opportunities to go outside, like along the coast, and everything like that, if any of these species are gone, people like me will just never be able to see them ever again. Ecosystems will crumble, everything beyond that will also crumble. Everything that I have or I will interact with would eventually be affected by these changes, whether it be a species going extinct or a species suddenly becoming very endangered, or a species just disappearing on the face of the Earth, and we have no idea when it would happen.

In terms of like even the fish we choose to eat, how easy it is to farm them, and like, especially with sustainable farming being a thing on many people's minds right now. For me. I've always been told by my cousin when I was younger that unagi, in specific, is difficult to sustainably farm. The eels in particular like, there are some sustainable farms, but you know, just because you eat the unagi doesn't mean that you know where it came from? And some farm practices aren't exactly the most ethical towards the fish and everything, like that, etc, etc, but either way, like the way that we eat food now is based on whatever is most convenient to be shipped over. And like whatever's the most profitable to be shipped over. Because therefore, the land is kind of like, you know, we got no farms. We have very few farms. No, it's not that we have no farms, we just have very little farms, and I don't think it's enough to sustain the entire nation, so we still got to have food imports, but because we rely on food Imports as well, if sea level rises. And, like I said, if the ecosystems crumble, there are some things that we can and cannot eat anymore.

Human greed, knows its bounds only when it starts to affect the humans themselves. That's also where I start to get a bit like, "Eh" about these

things. This is where I start to get a bit territorial, where most of my friends would be like, “okay, let’s move on”. But eventually, the people inland would also suffer the consequences of whatever happens outside of that inland. Anything that we consume now, has always been part of this ecosystem that relies on the sea and everything around it. The sea is like a huge chunk of the earth, of course. It’s going to have an impact on literally everything else, even if you don’t eat seafood. You like looking at fish in one way or another. Anything that you interact with eventually has its ties back to the sea, and if the sea is in trouble, it will have a cascading effect on everything, until eventually it reaches the top, but they don’t realize it yet because it hasn’t affected them yet, at least not majorly so. Even if you don’t talk about, you know the people that like live on these micronations or the people that subsist off the oceans and the ocean life around it, or even the animals that are there. Like, even if you don’t talk about those people having their land taken away by the sea, because we couldn’t do anything about it, then at least think about the wildlife that you are potentially going to harm. And it’s going to stay that way because, like, unless the sea level magically decreases, which is going to be difficult, unless you can just unclog a drain. Like, unless the sea level magically decreases, there are some plants and animals that are going to be very confused by the rise of sea water, but they wouldn’t know anything to do about it, especially not the plants. Again, what are they going to do, take up their roots? They’re, like, all right, puts on a top hat, picks up a suitcase, picks up their roots, and walks over inland.

Honestly, I think I did like a polytechnic project on this. Okay, I know a bit of Singapore’s way of tackling sea levels. I’m pretty sure that there are pictures here as well, especially here, the breakwater thing. So, this thing is supposed to be able to enhance coastal resilience. That’s the thing. So, I know that this is one of the things

that the government is trying to do. They’re having all these like things that are built around the shorelines or on the shorelines themselves, especially if you go far enough on the beach, and you still start seeing these like sacks (sandbags) around, right? Yeah, I remember doing a Polytechnic project on this where my teammate and I went somewhere in Marina Bay, I think it was Marina barrage. And we saw the barrage. We did see it, and I just remember standing there, thinking, like, that’s our solution, just to like, try and stop the water there. Just build a wall high enough that you’re going to Donald Trump the thing. That’s what you’re going to do? I remember sitting there like, just, you know at the viewing spot, right where you can see. It’s like just thinking to myself, you’re just going to build a wall to stop it. That’s effective. All right, if the Donald Trump thing works, then Donald Trump it! There is a limit to how much that breakwater can withstand. So, how much those sandbags can prevent erosion. Because erosion is a thing of time, erosion happens over years and years and years and years. Eventually, the sea level will rise enough, and those sandbags are going to have to be moved a little bit further back.

Some of these pictures involve people, right? So, I think this is also what a major part of what this artist wanted to portray, the people that are affected by rising sea levels and everything. You can see all these people they grew up, based off the coastal land, or at least they used to be part of the people that base themselves off this very identity. They’re just sort of just standing there. If you want to tell a story of the people that base themselves off these coastal identities, right? You might want to go more into the culture of why these people were here, how they managed to settle with the ocean. Because to these people, like the ocean, is not just a thing that’s there that they settle around, there’s a reason why they settled around the ocean and why they chose to live with the ocean. It can be anything from a

friend, a protector, or a guardian, almost, or even a provider. But it can also be a very dangerous thing. You hear people drowning at sea very often. You hear of people dying from crocodile attacks, They’ll draw you, yeah, they’re like, roll over. They’ll try to tire you out, you know, flail you around, and you’ll drown. And then they’ll start to eat you. But yeah, the thing is that you have these shots of the people and the sea. But, you’re not exactly showing. You’re showing the people with the thing, but you’re not showing people why they chose to go or live with the sea. Yeah, sure, I mean, I guess there is that lady who’s picking up sea snails, right? Yep. Yeah, this one. Yeah, they forage for the small snails along the coast of Pulau Hantu, and they believe that the sea is rising. The practice of foraging, from their ancestors may disappear. So that is one of the concerns of it, but you’re also not really explaining, like? Why did they choose to be with the sea, and the people’s aspect? Rising sea levels, right? You need to sort of paint a very solid image of the ocean that you want to do. You want people to see the ocean because with an art project like this, it is an art project. So, with a project like this, you are trying to paint the subject in a certain light. It’s the same as with any other art project with any other subject. This one just so happens to be about the sea, the climate crisis, and how it’s having rising levels. You know, it’s growing even. You want to paint a certain character for it? And the characters in these photos are expansive. Confrontational? So what does the author want people to see the sea as, because are you trying to paint the sea as a provider, a protector, something that we should be concerned for? Like, if you see a friend in trouble, you want to help them. Is that what you’re trying to say, or are you trying to paint it as this danger? That we should be aware of this thread that’s looming over our heads.

That’s also why I feel it’s important if you want to make an art project with a subject, as you know, large as looming as the sea. And you’re trying to

relate it to the locals as well. You need to give a certain character for it because people can see as many different things. And now you’re just showcasing what the government is doing to prevent the sea from rising, you know? Especially with this guy just standing here. This recent homeowner guy, I thought I saw this, and I almost laughed, because he, I mean, the homeowner’s concern is very simple. The sea somewhat gives you a sense of fear that one day the people who live near it could be hit first. But that’s a very, I would say narrow sense, but that’s exactly what you expect out of a homeowner, right, that my home would be affected where I live would be affected. And for some people, the ocean is their home. This guy sees the sea (#16) as a threat to his livelihood. What about the people who subsist off the sea? What about the lady picking the sea-snails? What does she think of the sea? She says that it’s, you know, picking snails is something that her ancestors used to do, that their people who forage for the sea used to do, does it mean that it’s a provider for her. Or is it taking away something that used to be home for her? That kind of thing.

Honestly, the pictures in here are great. It’s just they feel like you’re trying to paint too many images at once. You’re trying to give too many facets of being to see all at once, because on one hand, you say that it’s expensive, you know, the government is spending 100 billion dollars over this many years? Try and combat it. It’s an enemy. But to the lady picking to see, it’s part of her ancestry. But to the homeowner, it’s again a threat, you know, something that needs to be stopped and to the lady taking a selfie, it’s also something that you know she wants to have, because the sea is something that we see as something very esoteric in a sense. It’s something that we see as understandable to a certain extent because we know so little about it, but we know that it’s there. And as long as we keep away from it, it wouldn’t harm us. That’s still not the case, by the way, even if we keep away from it, rising sea levels can

cause the situation to go south, but like, besides the point, I mean the people who think about the sea, as their homes have a multitude of reasons for doing so. But a lot of these pictures. Well, the captions at least. View it as a sort of villain, but in many different facets. And I think painting this sort of contrasting picture of it, especially with one photo that's literally just the water, I mean like when you make an art project, you're trying to evoke something in people. But evoking too many things and people can be very confusing and a bit tiring. It's not a bad thing if you space it out over, like several chapters in a book. For example, you can have character arcs and everything. But you're working with pictures and captions, and you have only like 18. I'd say, pick a character for it, and you know if you want to have a sort of looming arc over it, you can definitely arrange your pictures a little bit better, or like, not just that, but also take pictures that tell the story that you want about the sea as your subject. Your sea is your muse at this point.

You see, I love the sea. I love the creatures that are in it. I have a preference for the ones with fins, obviously. But, um, I mean, like, the plants are there, too. For me, I love fish. I love the things that live in the sea. I think they're fascinating things that need to be studied. They deserve to be recorded somewhere in natural history. To have them fade away from memory or even go extinct without us even noticing is a crying shame. But a lot of people don't think about it because we know so little about the sea. We fear it and people that go down in deep sea explorations or dives, they're seen as brave or heroic, which rightfully they are. The sea is a very dangerous thing. At the same time, it should be treated as a part of us, as a people. We humans subsist on the sea. Every one of us does, at least to some extent, it's our friend, really. The way that I see it, it's a friend. So, if you want to paint a picture of the sea, you do it, right.

Everybody can see it's publicly on display, and you feel a connection to it. Let's say it's a media that you really like, a media that resonates with you, and then you see someone else make their own interpretation of it, their own work based on that thing, and you feel a kindred spirit in that sense. You feel somebody who also shares that appreciation. Or that same feeling of admiration to some sense with your muse because it is also their muse. Whether it's a shared feeling, a physical object, or something as vast as the sea. There is a sort of appreciation that I can respect there.

8. George, Back Office Big Tech
11 May 2025

I think it's a very serious problem that we should spend more effort as a society to tackle. Especially, like, because of the melting polar ice caps. And like the rising sea levels

I'm concerned about it because there's a lot of populations, you know, people who live along the coastlines and stuff like that. They will be affected by these rising sea levels. It's a very serious problem, and like a lot of our infrastructure is not built to tackle this problem at the moment.

I think Singapore is probably not ready with regards to rising sea levels. I mean, according to, like one of these pictures, he says that we need like \$100 billion to tackle, like rising sea levels. I don't think we've invested that kind of money at the moment into tackling the problem.

I think it evokes a lot of like emotions. It makes you feel very small. In the face of nature, you know, it always frames like the people are a bit like, maybe helpless in the face of this very serious issue. Like, how, like, these people cannot find, like, any more "siput" or like the yield of fishing has gone down and even the things like the mangrove trees have been engulfed by the high

tide that reaches an unprecedented level. I think it's quite, quite good.

Yeah, climate change is definitely a very real and serious issue. We have a very profit driven society, and this economy is not really welcoming. These are just some of the side effects of the consequences because we don't really care about them. The way we affect the environment and like all these, like the areas, or like the trees, or like the greenhouse effect and stuff like that. Yeah, and even like all these supposedly green companies, you know that they take part in green washing. I think it kind of defeats the purpose of their existence, especially if they claim to be pro-environment.

9. Miqdad, NGTFGH
11 July 2025

I think, living in the tropical regions, the climate crisis doesn't affect us much because more or less it has been the same since the last few years. We have the moonson season, seasonal rains, and also droughts.

About rising sea levels? Greenhouse effects result in rising temperatures that will result in ice caps melting.

I feel the author can make a comparison? Uh, the picture that he took now and 20 years ago, or 30 years ago. And. At the same place, but different time. Significant photos of homes, of people living in coastal areas, our foundations.

10. Shane
11 July 2025

I feel that my experience in the Oil & Gas industry allows me to answer questions very well, but how the climate crisis affects those people on the main island (Pulau Ujong?), I am quite unsure of.

With regards to the rising sea levels, I have heard that it would have detrimental effects for people who make a living in the coastal regions. But I don't think Singaporeans will be pretty much affected by the rising sea levels. I am quite certain however, that sea levels will rise in the next 5 to 10 years since carbon emissions are consistent.

So far, so good, like, it's nice, the artist did a pretty decent job communicating the issues of rising sea levels.

FINAL RESPONSE
12 July 2025

I also would like to thank all of the ten different interviewees. Thank you so much for stepping forward and also helping me. So, yeah, I've read through your correspondence. And yes, it allowed me to open up my mind in a way to liberalize whatever group thinking that I have developed over the past few years, and most importantly, also open up my eyes to the differing nuances. With regards to the climate crisis, as I'm reading about the climate crisis, right? Um, I would also like to comment much more. On how it affects me, and it concerns me. So before this, right? Like, I was only talking about the climate crisis on a utilitarian level.

But after the inputs of Kimberly Lim, Nishath Kumar, Ierhan Raushan, and also Aivan, it makes me actually question myself about what really matters in this subject. Is it just an I problem? Oh, as Nishath Kumar, clearly puts forward about the intercultural experience, you know, are there any voices that go unheard? Are there any cultures that are not well represented in terms of this climate crisis issue. So in the future, I will better engage this with a much open mind and also a welcoming heart. There are situations where we get so caught up with our own rhetoric that we often forget, there are civilizations and cultures that precedes the modern social contract in

Singapore. So, the past few months or so, I have been corresponding with Mr Jeffrey Salim, so we have been sharing a lot about the different cultures. He was also asking me about the housing systems in Singapore, and I was also asking him about the housing system in his kampung Sungai Temon. So, being open to questions, and so being open to listening, right? In a way, it gives us an opportunity to exercise, somewhat like micro diplomacy. So intercultural sharing of ideas, can open up our hearts to differing opinions. I also came across Aivan's point of view that the climate crisis actually becomes very discombobulating when privateers actually put most of the blame down to consumers

And then, in a sort of way, consumers will start to be so hyper individualized that we kind of reach a sense of apathy, you know. We avoid the problem, we procrastinate on that subject topic, and also we do not address the elephant in the room in terms of whether it's intended or whether it's a social engineering. It is up to one to actually decide you see. Why is it? Why is this solution going on like that?

In terms of the rising sea levels, also right, it actually has a cascading effect. It's not just going to engulf us, you know, it's not just going to erode our physical geopolitical boundaries. It's going to erode generational cultures and practices, but presently it also has a direct effect for people living inland when food chains start to topple. People from all sorts of social strata, poor, middle income, rich. Of course, you know, the poor people would be affected the most. They will usually be the most negatively impacted demographics in terms of rising sea levels. And again, it gave me an opportunity also to interview all sorts of people, you know, because there seems to be a sense of asymmetrical information about how Singapore is trying to mitigate this rising sea level and also trying to come up with solutions and contingencies, which I'm aware of it because,

I'm a very strong supporter of the establishment, so I try my best to keep track about what the government is doing in terms of like policies, directives, working groups, and also grassroots engagement, but I feel if this is the case where my interviewees about not so familiar about what the government is doing right there needs to better communication & engagement. The problem with a lot of this climate crisis advertisement, it becomes like rubbing the salt in a wound. Back at this, like what Sufian Rahman and also like what Aivan says, right, it becomes as though there is a tinge of green washing, and then the blame will be actually pushed down to the consumers, you know. So, I think it's pretty counterproductive for the government and also privateers to do advertisements and engagements that just blame the consumers. There seems to be a very nefarious intention, you know, when all of this climate issue and rising sea levels is being blamed on the consumers solely. So, anything that I can add right now, is of course, you know, I feel that, um, reading through the interviewees experiences and Nishath Kumar, correspondence, could complement the artist's work. Aivan also commented that the art may seem too, I mean, the different photos may seem to have much of a diverse topic, you know. So, it doesn't seem focused. Both correspondents came out positive, you know, and they were trying to complement the artwork because we need to find a sweet spot where we can also engage the different attendees or different interpreters, into focusing more on the rising sea levels. Is the sea actually seen as either divine or either good? Or is the sea actually evil? Such as the picture where you see the lady actually picking up sea snails, you know it's complementing her culture, her indigenous identity, and also supplementing her with food. But then, of course, there are pictures where it actually sets the undertone that you know the sea is something scary. The sea is something esoteric, you know?

The sea can also be seen as something that will engulf us, and will cost us hundreds of billions of dollars and impact our fiscal position negatively. Um, I will also push for expressing the sea in a certain way, either positively or negatively. If it's both portraying good and bad at the same time, it can actually be confusing for some of the interpreters to interpret this, you know?

I would also like to add the importance of, you know, opening up our hearts and minds. My friends, my newfound friends, Nishath and also Aivan are really active in the LGBTQ community, so I feel that their correspondence really complimented the interpersonal and also artistic touch of my own lived experience because I could add that my life is pretty much conservative and by the book. Basically, because again, Nishath also emphasized that the sea is our life, and eventually we will go back to the sea. We are essentially direct stakeholders of the climate crisis and rising sea levels.

Thank you everyone!

RESPONSES

Alison S

The rising sea level is a climate issue that may feel distant for many Singaporeans like myself. I cannot say I know scientifically about rising sea levels in Singapore because I do not feel it affecting me directly even though I constantly spend time by sea, and the land we grew up on has already been reclaimed. That being said, I do know that one of the ways Singapore tackles rising sea levels is by creating breakwaters and reclaiming more land. A major upcoming initiative is the Long Island coastal project, which blocks off a large portion of the beach Singaporeans are used to. There are almost no mangroves thriving in those areas, even though they are a natural solution that requires time and effort to nurture. Some of our current remaining mangroves could also be better tended to. As city-dwellers, we spend most of our days on land, usually without having to think about natural disasters like typhoons or tsunamis — largely due to Singapore's location on the map. It's fair to say we've been relatively safe from natural disasters, with our neighbouring countries shielding us in strategic ways.

When I think about who is affected, I tend to picture those living in the ever-sinking city of Venice or indigenous people in Alaska surrounded by melting glaciers. In recent years, I've also been thinking about our own indigenous islanders who live surrounded by water, and whose daily rhythms follow the sea and sky—the Orang Laut and Orang Pulau. These people live by the way of the water, so rising sea levels are a direct threat

to the safety of their homes and livelihoods. In Cherating, Malaysia, you can witness the edges of land breaking away year after year, and return to holiday villas that have lost their front steps and trees to the sea. Large cylindrical concrete blocks are shoved into the shorelines to hold back the tides, but as night falls, we watch the rising waves slam into the blocks and spill over the cold, thick "wall" — a reminder that such solutions won't last.

Hearing Zakaria present *Singapore Surfacing* to share his thoughts on the visuals chosen by local news sources to illustrate rising sea levels in Singapore, reminds me of how little we pause to consider or question why these images are chosen in the first place. I've always felt that the images often lack care in storytelling. I also can't help but sense that while there is urgency in the climate reports, the open-ended visuals are somehow intended to soothe the reader. It feels like the government's way of saying, "Don't worry, be comfortable. We have plans to keep this under control, and you can trust us." What struck me was one of Zakaria's examples of an article reporting Singapore's new sea level research facility — the Coastal Protection and Flood Resilience Institute (CFI) Singapore yet the visual chosen was of people walking along a beach in Japan. Zakaria is right: there is no relevant storytelling, there is no human connection or interest. This reiterates exactly how important visuals are — especially when they can either connect us to, or disconnect us from, our own climate issues.

RESPONSES COLLECTED BY ALISON

1. Heng Li Seng

1 July 2025

Rising sea level is a sign of the impact that humans have made to the climate. It is not just a sign, but it is also a repercussion when we talk about cause and effect. Rising sea level is a challenge, not just for the individual, but for many generations to come. To be honest, I am sad that it is coming into reality in these few years. Now when I think about this top, what comes is sadness, disappointment, and a sense of helplessness. It feels like despite what I have been doing to encourage people and to be more sustainable. The truth is, it is not enough and probably will never be enough to overcome this phenomenon.

2. JS Lee

5 July 2025

I see extreme weather patterns to be an emerging symptom of the climate crisis that is already affecting us today with increasing frequency and intensity.

Rising sea levels is the other major concern and, in our region, we are seeing today how it is impacting coastal communities in Southeast Asia, especially those who are economically disadvantaged and who are unable to easily relocate. Many of these communities happen to also rely on fishing for their livelihood and as an indirect result of the impact of climate change, now have to travel even further than before to achieve the same catch. Singapore is fortunate to be able to make longer term plans to undertake infrastructure projects to protect our shorelines. The Long Island reclamation off East Coast is one such project that will be able to protect our low-lying areas because it is based on the concept of seawall protection which is a technology that has been deployed in other low-lying countries such as the Netherlands. We have also been fortunate that Singapore has

recognised this issue decades ago and thus has been revising our minimum land reclamation level upwards over the past few decades — in effect, this means that Singapore's land is being build higher by a few metres compared to before, and this will help reduce the immediate term consequences caused by flooding.

3. Charmayne Lee

7 July 2025

One of the most direct and felt impacts of climate change is rising temperatures. In a highly urbanised city like Singapore, the urban heat island effect is very noticeable due to the abundance of concrete and built-up areas. Communities with less access to cooling resources are more vulnerable to this, which can lead to wider social impacts.

Rising sea levels are another area of concern, particularly for those living near the coast. While exploring efforts like using mangroves to protect our shores are promising, I'm also wondering about how other efforts like land reclamation might affect wildlife and natural spaces that are already being disrupted.

A lot of communication around sea level rise focuses on government strategies and physical impacts like flooding and erosion. But I feel that these messages could connect more with people if they included stories about those who live by the sea, rely on it for their livelihoods, or have deep ties to these places. Emotional storytelling can make the issue feel more real and relatable to a wider audience.

Image #15 left me wondering about the untold stories of this Orang Seletar descendant. Growing up with the sea as a constant presence, I wonder how the changes he's seen have shaped him and those around him. What memories are still held close, and which parts of that history might be at risk of being lost?

Some of the other portraits feel more polished, with the ocean serving mainly as a backdrop. I wonder if there's a way to portray a more raw, unfiltered relationship — something more personal like glimpses into daily life, shared routines, or moments that reflect how the sea actually lives in these people's lives. That might make the connection feel more real, and less symbolic.

4. AHC

7 July 2025

As a practicing artist, I'll not deny the beauty captured, yet I wonder the intended emotion they were meant to evoke—is it the calmness before the storm or? In my opinion, it is indeed a feat to capture the intense mess that is a part of the climate crises whilst still portraying it in a beautiful way that fits on the walls of gallery. As much as I love beautiful and dreamy visuals, I wonder will capturing the honest chaos and ugly sights of the climate crisis linger in the viewers' minds for a little longer? To that, I don't have an answer either.

Image #10 spoke to me because of the moss on the rocks. It looks a lot like the bright green grass we see on land. It reminded me of the 'hidden/invisible' relationship between the land and sea—one that gets forgotten (even by myself) on most days.

5. Debra S

7 July 2025

As someone who has spent all her life living by the Ocean, I feel a strong affinity to the sea. With its roiling waters, crashing waves and sometimes uncanny stillness; it seems to reflect life as a whole. It brings life and livelihoods and connects us all around the world.

Working in Sustainability and interacting with members of the public — rising sea levels is unfortunately a topic that appears to be of less

concern, less talked about. It is an issue that people might not even be aware of or lack the understanding of. It is something that isn't a natural disaster, it is one that is caused by us Humans.

So then, in the midst of all the plaguing environmental issues we're faced with, how then do we get people to care about the severity of rising sea levels when furthermore, in the comfort of their own homes, the impacts are hardly felt?

RESPONSES

Firdaus Sani

Zakaria Zainal's photographic series, which features various coastal communities including my own, the Orang Laut, opens up an important space for recognition. It is rare to see our faces, our homes, and our relationship to the sea represented in such a visible and intentional way. As someone from this community, I feel both moved and reflective. These images carry weight, not just visually, but emotionally. They invite the viewer to consider what it means to live along the water, at the edge of land and certainty.

Yet, as someone who holds lived experience within the community, I also carry a different understanding. I see things that may not be immediately visible to the lens. For many of us, the conversation on climate change has never been a formal one. You may not hear someone say "the climate is changing," but you will hear them speak of shifting tides, unpredictable weather, and the growing worry of what a heavy rain might do to a boat that is tied up for the night. These are not abstract concepts, they are everyday observations.

I believe there is a need to recognise the nuance here. Coastal communities are often spoken about as those most affected by climate change, and that is true. But what is equally true is our adaptability. The Orang Laut have always been navigators, readers of the sea, attuned to changes in wind, current and cloud. The knowledge we carry is inherited, practical, and deeply tied to the

rhythms of the natural world. It may not always be expressed in formal terms, but it is no less valuable or insightful.

In this sense, while the photographs open up important conversations, they can only tell part of the story. As with any artistic interpretation, there are limitations. The complexity of a people's relationship with place, with memory, with the uncertainties of the future, cannot be fully captured in a single frame. What we see in an image may gesture towards loss or vulnerability, but what is often missing is the quiet, steady presence of expertise and resilience.

This is not to say the work is misguided, far from it. It is meaningful that artists and photographers are engaging with these questions and with our communities. But it is also important that this engagement leaves room for self-representation, for stories told from within. Photographs may begin a conversation, but it is the people who live these realities who must be able to speak for themselves, in their own ways and words.

For me, this reflection is not a critique, but a contribution. It is an invitation to consider that there are layers beneath the surface, shaped by generations of experience and shaped too by silence, not because we have nothing to say, but because often, we have not been asked in the right way.

I remain hopeful that this growing attention to our coastal communities will lead to more dialogue, more listening, and a deeper understanding of what it means to live in close relationship with land, sea and sky. The climate is indeed changing. But so are we; always adapting, always learning, always moving with the tide.

RESPONSES

Hui-E Seeto

FIRST RESPONSE

Rising sea levels in Singapore is a concern?? Had no idea it was really a thing or on the national agenda!

SECOND RESPONSE

As someone who has a deep appreciation for nature and respect for the outdoors, I felt somewhat foolish and slightly horrified that I had not 'connected the dots' when it came to how rising sea levels would impact Singapore, a little red dot of an island.

If this was my starting point, what then of those who are less connected to nature and the environment? Like my nephew who is constantly glued to his computer and doesn't appreciate animals or nature. At the risk of stereotyping, Singaporeans in general can be very apathetic when it comes to matters that involve the environment. "Oh let the gahmen sort it out they already have a plan like Long Islang Plan. They can always (fill in the blanks e.g. build more seawalls, build higher, dig deeper, reclaim more land and make it much higher than mean sea level etc). It won't be a problem!"

This is indeed a difficult project.

Zakaria's approach of contextualizing the issue in Singapore through the seafaring Orang Laut community and the impact of rising seas on their livelihood, is a good approach.

But as part of the response to this project, the questions on my mind are: will people care? How might we articulate how the average Singaporean's dependency on the sea so that we can influence them into caring? Do they know enough about the Orang Laut community in order to appreciate and relate to the impact? How does this subject impact them and their own lives in their urban high-rise flats or houses where they are so spatially and mentally distant? What change do we want high-rise?

Note: Tuvalu <https://www.bbc.com/future/article/20241121-tuvalu-the-pacific-islands-creating-a-digital-nation-in-the-metaverse-due-to-climate-change>

RESPONSES COLLECTED BY HUI-E SEETO

1. Josephine Wang

When I think of rising sea levels, what's concerning is that the submerging of land is irreversible. To me that's a sad thought because the history, culture, heritage <of a place and people> is lost forever.

Sea conditions are changing and becoming more unpredictable, affecting livelihoods of those who depend on the sea. Even though we're an island nation, we don't have an acute understanding of our dependence on the sea. We rely on the government to put up the physical protection eg sea walls, east coast plan.

Rising sea levels is but one aspect of climate change. It's a sober reminder to do our part. For example, reduce carbon emissions in daily life. Like taking public transport, using energy efficient appliances, recycle, reuse.

It may be hard to see impact from our individual actions, but I believe it has cumulative impact as a society.

I live in Punggol. I have wondered before what would happen if sea levels rose, and what would happen to my estate. Perhaps I better move away from Punggol!! ;p

We can never be overdependent on our government. Everyone should do their part.

We have to ask ourselves an honest question: what are we personally willing to give up to do our part? For example, eat less beef? Use public transport? Reduce aircon usage? There is no single yardstick, we're all different. My kids aren't willing to give up aircon, on the other hand they won't shop at H&M / fast fashion.

2. Charlotte Hsu

I'm concerned how our government and property developers, city planners are planning for this issue. We don't have a lot of waterfront. How do you protect your assets, not only those by the water?

If mean sea levels will rise 1.15m by 2100, how will our kids and their next generation be prepared? As a country, everyone needs to be prepared to make a lot of changes.

Imagine, how will Singapore look like with seawalls around the whole island? What does this do aesthetically? What will the impact be on Marina Barrage and hence our water supply? And our nature will also be affected...what will happen to Sungei Buloh?

We also have to consider health and environmental impact of flooding. Think about what happens if there is no more Sentosa, Robertson Quay, mangroves, etc. Most people won't feel any immediate impact so they will want the government to do something about it.

It is easy to say to reduce carbon footprint as an individual, but in the face of rising sea levels, what can an individual do??

There is no scale.

We have to work with our government to do early planning, early communication of this matter.

3. Jasmine Wong

We generally don't know a lot about the Orang Laut in Singapore. So it is hard to understand the impact of climate change on their heritage and way of life.

We know we need to make infrastructural changes to mitigate the impact of rising sea levels.

Are we prepared for higher proportion of expenditure for such infrastructure? For example usage of our tax dollars and Singapore budget allocation for something that the everyday Singaporean cannot see right now?

The Singapore government is definitely doing a lot and taking responsibility to mitigate the risks but in terms of raising awareness of climate change, and rising sea levels....should it be the responsibility of MOE? Environmentalists? Non Profits? Who else?

Because in Singapore, people don't read up on such issues. And to raise awareness, do we expect MOE to take this responsibility? In fact, why do we expect the government to do everything??

4. A friend from Manila, who did not want to give consent or to be named.

In general terms, she shared that in Manila, whenever anyone looks to buy a piece of land, by default they will already be thinking first and foremost about whether it will be in an area that has flooding issues. So rising sea levels is always at the forefront of their minds.

She also felt that Singapore is in the best position in this region, to do something about rising sea levels. Our government has the resources to mitigate the risks.

Finally, she felt that the topic of rising sea levels was hard to communicate via photography and imagery, and may not have been the most effective medium.

'The medium is the message', she said.

RESPONSES

Shahrom Taha

17 May 2025

FIRST RESPONSE

Seeing the images for the first time at Li Li's place was almost surreal. Had a sense of "ok, what did I get myself into?"

My family and I, we love nature and more specifically, the sea. So It's natural that the subject matter of rising sea levels resonates with us.

Yet also, we sense an inevitability to it all – rising sea levels.

The pictures: quite honestly, I wanted to see more shocking and provocative photos to communicate the urgency of the matter.

Zak's photos, while good, can be better. Yet I suppose from his sharing and conversations it's a necessary step in his "artist's journey".

RESPONSES COLLECTED BY SHAHROM

1. Anonymous

What aspects of climate change are you aware and concerned about?

I am aware of the impacts of climate change in Singapore which includes rising sea level, threats to greenery and biodiversity and water resources which in turn affects humans. The photos bring to light the adaptation strategies to cope with the impacts of climate change such as seawalls and the possibility of its effectiveness being

undermined as the impacts get exacerbated with worsening climate change which we should be concerned about.

What aspects of rising sea levels are you aware and concerned about?

I am specifically concerned about whether hard engineering strategies can help effectively cope with rising sea levels which are expected to worsen by 2100, considering that this infrastructure are very costly. I am also concerned about how resilient the ecosystem is in adapting to the changes in sea levels and whether they will be decimated by it. While ecosystems have shown resilience in the past, the rate at which sea level is rising could easily overwhelm the ecosystem services that help regulate the changes the rise in sea level bring e.g. salinity levels, tides, erosion etc.

What do you know of Singapore's plans to deal with rising sea levels?

Singapore takes on a multi-prong approach which includes mitigation strategies (how to reduce carbon emissions), adaptation strategies (coping with the impacts of climate change) and also international efforts to combat climate change as a whole. The photos depict some strategies like seawalls although I believe these would not be sufficient in coping with rising sea levels.

What needs to change for people to be more aware of the situation? In terms of Communication? Content? Methods?

Personally, there is a sense of awareness fatigue due to over exposure to climate change campaigns through all fronts of media - tv, newspapers, social media etc. so people get unalarmed by it because they are used to seeing it every day. I think what gets people more alarmed is that if their bread and butter get directly affected by it, then there will be more impetus for change. It's human nature to take more urgent concern if they are right at the heart of the issue. Perhaps if that can be communicated and be the direction of the campaign, then Singaporeans can see the exigencies of climate change and take greater action.

What else can we do to heighten the awareness of rising sea levels?

I feel the awareness of rising sea levels is already there. Infrastructure has been raised along the coast, land has been reclaimed to create buffer zones to protect key development areas, students have been educated on the impending rising sea level. What needs to be raised is the awareness of what to do to combat climate change -actionable steps that are feasible for the masses, facilitated by structural changes by the government to make it easy for people to transit into a greener future. I think this needs to be done more quickly, and at the parliament level - less debating, more doing e.g. Just ban single use plastics in supermarkets already.

Anything else to add?

I think the individuals can cut some slack. The photographs put individuals at the core of the issue illustrating how their everyday lives are affected, and urge the need to be aware of the impacts of climate change. While this is important, I feel the main culprits have and always will be businesses and industries who emit greenhouse gas and contribute to global warming at a rate that supersedes what an individual can do in their lifetime. Industries and businesses, and the top 1% have often been left out of the picture when they should be under greater scrutiny as a single mishap on their part can have devastating

consequences for the environment - see oil leakage on Pulau Ubin or vehicular emissions by private jets in a single trip. Yes, while collectively individuals can make an impact but their efforts can be easily undone by the actions of a few corporations or wealthy irresponsible individuals.

2. Anonymous

What aspects of climate change are you aware and concerned about?

Temperature rise. Sea level rise

What aspects of rising sea levels are you aware and concerned about?

I am aware of the causes, impacts, and management strategies associated with rising sea levels. There are differential impacts of rising sea levels where certain communities experience more pronounced impacts than others, such as coastal and marginalised communities.

On a local scale, I am concerned about how rising sea levels will affect Singapore's development as a low-lying island.

On a global scale, rising sea levels may accentuate existing inequalities. While developed countries would be able to afford flood management and climate change adaptation strategies to safeguard against rising sea levels, the coastal communities of developing countries would lack the resources to adapt.

What do you know of Singapore's plans to deal with rising sea levels?

Singapore takes on a more adaptation-based approach rather than mitigation.

Adaptation strategies : building coastal protection measures (e.g. Long Island Project), investing in mangrove restoration for natural coastal protection, upgrading storm water storage systems to cope with increase in extreme weather events etc.

Mitigation strategies : SG Green Plan, Education / community engagement etc.

However, there may be concerns with the unintended environmental consequences of constructing adaptation-based strategies on surrounding ecosystems

What needs to change for people to be more aware of the situation? In terms of Communication? Content? Methods?

Communication : How to make Singaporeans more aware of our positionality as a low-lying island which would definitely be affected by sea level rise.

Content : Making climate change impacts more visible in school learning. Not only learning about climate change impacts at a global scale, but going more in depth to the specific areas at risk and what can be done in Singapore.

What else can we do to heighten the awareness of rising sea levels?

Besides raising awareness, the risk of rising sea levels needs to be made visible and palpable in Singaporeans' daily lives. For example, designing flood markers or sea level markers near coastal areas such as Marine Parade to make people more aware of the low-lying areas with higher flood risk in Singapore.

3. Ismail



4. Khalisha



5. Nurul 'Afiya



6. Mohamed Mikail Bin Mohamed Shahrom

My Thoughts on the Climate Crisis

I'm aware and concerned about many parts of the climate crisis. I know about climate change, global warming, rising sea levels, acid rain, and more. What worries me most is how not just people. I care deeply about nature, animals, and all this affects the environment ecosystems. In short, I understand what's happening, and I care a lot about the damage being done to our planet.

One issue I'm especially concerned about is rising sea levels. I've learned about coral bleaching, the loss of undersea habitats, the drowning of islands, and the destruction of coastal homes for both people and wildlife. Again, I'm more worried about the harm to although both are serious. The rising seas are changing nature than the harm to humans the Earth in ways that may not be reversible.

I also know a bit about the Singapore Long Island project. I heard about it from my mom and dad. It's a land reclamation project that aims to build a long island to protect the East Coast from sea level rise. But to be honest, I only know what the government has said about it not much more. I think it's important for young people like me to learn more and ask questions about big projects like this.

One thing that we might need to prepare for is protecting our power cables. As sea levels rise, the water pressure underground also increases. This could cause seawater to leak into underground power systems. Here's how I understand it: when water pressure gets too high it pushes water into the ground around the cables. If there's nowhere else for it to go, the water could seep into the cables and damage them. If that happens, we might lose electricity and may even have to go back to "old-fashioned" ways of communicating, like writing letters!

In conclusion, I believe we need to take the climate crisis seriously. It's not just about humans it's about protecting the Earth we all live on.

FINAL RESPONSE

1. Gathering Responses

I focused my efforts on two groups: children (13 and under) and educators. The children were mainly my own and their friends from the sailing community. Unfortunately, most parents were not comfortable with their children's views being publicly shared. Still, it was clear from conversations that the kids were aware of the threat posed by rising sea levels. As young sailors, they weren't particularly anxious about the sea encroaching-what concerned them more was the loss of coastal areas and habitats, and the subsequent threat to marine wildlife.

They also expressed concern about climate change and its direct link to rising sea levels.

They clearly understood that human actions were driving these changes. There was a sense of inevitability in their tone, even a quiet resignation that these changes were already happening. Yet, they were glad to have taken up sailing. It gave them confidence in the water and the ability to travel competently at sea-skills they felt were essential in a future shaped by climate change. They also saw sailing as a sustainable mode of transport, since it relies on zero fossil fuels, and believed that adopting a sailing lifestyle was one way to live more sustainably.

As for the educators I approached-five in total-all were Humanities teachers. Unsurprisingly, they were well-informed about the issue. Only two agreed to have their thoughts shared, both of them Geography teachers.

Here are the key points they raised:

1. It's unfortunate that Coastal Studies is not a core part of the Geography syllabus. They felt strongly that it should be compulsory, especially for a nation that is, quite literally,

an island. The conversation naturally turned to how many Singaporeans don't fully realise this geographical reality.

2. Rising sea levels are inevitable. Rather than only asking how to stop them, we should also study how to adapt-how to live on or with the sea in sustainable and enduring ways.
3. Climate fatigue is real. Activists and educators alike are overwhelmed by constant warnings and dire predictions.
4. While individual efforts matter, their impact is limited. Real change must come from governments and industries, whose decisions hold far greater weight in addressing the issue at scale.
5. It remains difficult to get youths meaningfully engaged in climate advocacy. Unless these topics are embedded within the curriculum, most students (and teachers won't see their relevance to future challenges).

2. My Own Views on Rising Sea Levels

As someone who deeply loves the sea, anything that threatens it naturally worries me. But like some of my fellow educators, I can't help but feel a growing sense of cynicism. In Singapore, environmental concerns often take a backseat to economic development-or defence. A recent example is the announcement of land reclamation near Changi Car Parks 6 and 7 to support an aviation park for airport expansion.¹ Although the scale has supposedly been reduced, I find the claim that it will have only a "slight negative impact" laughable, especially having seen first-hand the ecological damage caused by the Pulau Tekong reclamation.

Such projects inevitably alter our waterscapes and disrupt marine ecosystems. The proposed Long Island project is another sore point for me. While

others may be reluctant to say it out loud, some have described it as a "land grab," "yet another economic opportunity masked as necessity," or even "an unnecessary monstrosity." There are, after all, many other proven ways to mitigate rising sea levels without reclaiming such vast portions of our coastline-again.

I would love to be a more outspoken advocate for our natural coasts, but it often feels like I'm swimming against the tide. At some point, I decided the most meaningful way I could contribute was to start with my own family. Nurturing a love for the sea in my children is something I feel very strongly about. I believe emotional connection must come first- only then can our youths begin to care deeply enough to take action. Sadly, as an educator, I know how challenging it is to organise water-based activities in schools due to safety and liability concerns. And so we are left with the reality: how many of our youths truly care about the sea when they barely spend time near it?

As an island nation, it's ironic how detached we've become from the sea. For me, as a descendant of the Orang Laut, it's especially heart-breaking to witness how traditional maritime knowledge has been dismissed, and how entire communities have been marginalised or resettled-all in the name of progress. Yes, I am deliberately linking the issue of rising sea levels to these broader historical and cultural dynamics-because it is all connected.

To truly respond to this crisis, we need to dig deeper, including into our own past, to rekindle the connection that Singapura once had with the maritime world. I hope this project can help build greater awareness of the state of our seas and shores-and perhaps inspire others to care, act, and advocate before it's too late.

¹ <https://www.straitstimes.com/singapore/environment/193ha-of-land-off-changi-to-be-reclaimed-for-aviation-park-area-reduced-to-save-seagrass-meadow>

RESPONSES

Sarah Tang

19 May 2025

This might not be the most comfortable admission, but I've never been someone deeply engaged with climate change. Living in a bubble surrounded by artists pursuing their passions, I often don't consider the world beyond this creative enclave.

My personal experiences with the sea have been overwhelming. I once nearly drowned off Sentosa while attempting to swim to a nearby island, only to be struck by sudden cramps. Another time, a fishing trip with my best friend turned into hours of battling severe motion sickness. There's something about the calm surface of the water that belies the vast unknown beneath, evoking both awe and trepidation.

For the past 12 years, I've been designing books, drawn to the tangible nature of print. Yet, I'm acutely aware of the environmental cost—particularly the number of trees sacrificed for paper. The discourse on our deteriorating planet has become so intense that its core message feels convoluted. In our fast-paced, technologically advanced world, we're accustomed to digesting information in quick, bite-sized pieces. Headlines often replace full articles, leading to "information exhaustion."

Recently, I've encountered discussions about the environmental impact of AI technologies like ChatGPT. While they offer convenience, they also come with significant ecological footprints.

For instance, training large AI models requires substantial energy, with estimates suggesting that training GPT-3 consumed 1,287 megawatt-hours of electricity and generated 552 tons of CO₂ emissions—equivalent to the annual emissions of 123 gasoline-powered cars. Additionally, the water usage for cooling data centers is staggering; training GPT-3 reportedly consumed approximately 700,000 liters of freshwater.

Viewing Zakaria's images through my lenses—as a designer, art educator, and Singaporean—I find them profoundly resonant. As a Singaporean, I've always found it ironic when expatriates express their love for our "sunny island." Many locals, including myself, don't identify with our land in that way. Sentosa, with its imported sand and artificial beaches, epitomizes the manufactured nature of our environment. Singapore often feels meticulously curated—clean, efficient, and aesthetically pleasing—but sometimes lacking authenticity. While I cherish many aspects of my country, I occasionally feel pressured to conform to an identity that doesn't fully align with my own.

I've often expressed a desire to live overseas, gravitating towards cities that offer convenience, efficiency, and vibrancy. Urban life invigorates me, but I acknowledge the environmental costs of urbanization. Am I angry about the damage we've inflicted? Do I believe it's justified? These are questions I grapple with.

A few weeks before the roundtable discussion on Zakaria's photographs, I watched Alfian Sa'at's play Merdeka, which provided deeper insights into Singapore's roots. I also came across Firdaus Sani's work promoting understanding of the Orang Laut and was eager to meet him during the discussion. As a second-generation Singaporean Chinese, I sometimes question my right to voice opinions on these matters. This land wasn't originally mine, yet it's the only home I've known.

As a designer collaborating primarily with writers, I recognize the importance of history. Documenting our past allows us to reflect and chart a course forward. Our history shapes our identity, even if we're not always conscious of it. To me, effective communication hinges on empathy. We're not addressing machines; to truly engage people, we must evoke emotions. In Singapore, where intellectualism often prevails, I believe this emotional connection is crucial.

Zakaria's decision to incorporate portraits into his work was astute. By humanizing the issue, he made the invisible visible, highlighting the real lives affected. While I understand the challenges he faced, including subjects' reluctance to participate, I believe the images could have been more impactful if they captured candid moments of individuals interacting with the sea.

Having taught for eight years and spent considerable time with younger generations, I admire their ability to set boundaries amidst numerous challenges. I often wonder why youths in Western countries are vocally critical of governmental and corporate responses to climate change, whereas local students seem more preoccupied with personal issues like mental health. Notably, a national survey found that 25.3% of Singaporean youths aged 18 to 29 reported poor mental health in 2022, up from 21.5% in 2020.

I believe our youth are our future, and it's our responsibility to guide them. However, the

impetus for change must come from within. When it's their turn to vote, what issues will they prioritize? The cost of housing becomes moot if rising sea levels threaten the very land on which homes stand. Climate change should be a paramount concern for our youth. Yet, in an age of overwhelming information, they might struggle to discern which causes are worth championing.

Recently, I delved into studies on cults and encountered the Church of Euthanasia. Their provocative slogan, "Save the Planet, Kill Yourself," underscores the despair some feel about the state of our world. It reflects a sentiment among today's youth—they're burdened with rectifying problems they didn't create.

After last night's discussion, I reflected: if someone like me, positioned to influence the younger generation, remains indifferent, how can I expect them to care? I don't have all the answers and often feel as helpless as I did at the beginning. Yet, Zakaria's work has illuminated the human faces behind climate change, compelling me to care—and that's a start.

RESPONSES COLLECTED BY SARAH

1. Wesley Teo Jia Cheng,
22, Design Student M.A.D School
21 May 2025

Honestly, as a 22-year-old, I had never really thought about climate change. It wasn't until my teacher showed us a series of powerful images that I began to consider the stories behind them and what they were trying to communicate.

After our discussion in class, I suddenly realized how climate change is actually making life worse in many ways. Until then, I had only noticed that Singapore's weather was getting hotter. But through some research, I learned that climate change refers to long-term shifts in temperatures

and weather patterns, mainly driven by human activities like burning fossil fuels. These changes lead to rising sea levels, extreme weather events, and other serious consequences.

The good news is that we can all do something to help. Tackling climate change requires action at the individual, community, and global levels. Supporting renewable energy, eating sustainably, planting trees, and conserving energy are all meaningful steps. Every small action contributes to a healthier planet.

2. Wesley Lung Jia En
Design Student M.A.D School
21 May 2025

Seeing those photos made climate change feel real to me. It's not just something we hear about in the media — it's happening right here in Singapore. Images of flooded streets, eroding coastlines, and people in distress made me realise the severity of the crisis. I now feel both concerned and responsible, and I'm motivated to take action before the situation worsens for future generations.

3. Afiqa Zuna Binte Basties
39, Executive
3 June 2025

The images don't quite connect with the message about rising sea levels. The sea shots, while visually appealing, feel a bit empty and disconnected. They don't offer much context or help convey the urgency of the issue. The photos of people also feel unclear. If some of them are meant to be Orang Laut descendants, it's not obvious. They come across more like people who just happen to work around the ocean, which makes the message feel watered down.

Because of that, the story loses some of its impact. It's hard to tell who the people are, what their connection is to the sea, or why we should care.

The emotional and narrative weight of the issue, and how rising sea levels affect real communities, doesn't come through strongly. This makes it harder for the audience to engage with or feel the significance of the message.

4. Chew Zi Yang, Hans
Nanyang Academy of Fine Arts (NAFA)
Technical Officer
5 June 2025

I believe that this series of work encourages viewers to have a second thought about the impact rising sea levels has on various communities — a subject that is often invisible and distant. The use of text also makes the subject matter feel personable. However, the scenes evoke an idyllic impression that may contradict the urgency of the message.

5. Charles Fredrick Maglaya Basa
Writer, 35
8 June 2025

As real as the issue of climate change is, for many people, it still feels distant, a problem far removed from their own home. This sense of detachment is common, especially among those insulated by the comforts of modernity. Although some research suggests the contrary, the perception of climate change as a remote or intangible problem still persists in the zeitgeist.

Photography is a time-tested medium, but climate change can be too difficult a subject to portray. Its very nature can make it challenging for viewers to fully grasp its meaning, regardless of the photographer's skill or intent, without captions.

By portraying the descendants of the Orang Laut in their ancestral habitats, these images aim to present the effects of climate change closer to the viewer, by situating the issue in real, lived environments in Singapore. However, without clear context or captions, such portraiture can

appear to simply document their cultural history, rather than highlight their vulnerability to environmental changes. In fact, the more artistic shots were even more evocative in this collection. They conveyed the photographer's intention more effectively — ironically, through abstraction and indirectness.

Ultimately, a singular project is not enough, but a repeated, collective effort that overcomes apathy and makes the issue feel both urgent and personally relevant, rather than distant or insurmountable.

RESPONSES

Elijah Tay

12 July 2025

Having just the sea in its vastness and surface perfectly sets the stage for this project and its message — the seas are rising, this is what it looks like now, and what it can look like as the climate crisis exacerbates with insufficient resistance to the capitalistic forces that drive it.

What particularly spoke to me in this photo series was the purposeful spotlighting of the Orang Laut, the indigenous people of Singapore, many of whom descendants of Pulau Semakau. Some of the photo captions reflect how, with the sea levels rising, a threat is posed towards the ability to preserve traditional practices like foraging. Such erasure of indigenous culture is nothing short of cultural genocide — as we enter late-stage capitalism, the exponential extraction of resources, increasing use of fossil fuels, and growing overproduction and overconsumption via the manufacturing of consumerist culture all perpetuate the climate catastrophe that drives global warming and the consequent rising sea levels.

But this cultural genocide in Singapore, at least that of the Orang Laut, is not a new phenomenon. Under Lee Kuan Yew's regime, this indigenous population was displaced from their home. I recall accounts from friends who are also descendants of Orang Laut that, as a result of these forced relocations, some of their ancestors not only lost their homes, they faced adverse health effects that affected their wellbeing and mortality, such as when their bodies and skin were unable to adapt

to purified water after decades of growing up with sea water. Not only that, the land that was once the home of Singapore's indigenous population is now a landfill — an island dedicated to collecting trash. What does it say about our country when the original inhabitants have their homes treated as a dumping ground for waste, and when their health and culture are threatened by state decisions and actions?

As the seas rise, it is compelling us to pay attention. Not just to what is happening now, but the history behind it and the underlying factors driving it. And it is telling us not to wait — as sea levels rise, so must the people (in fact, more so must the people rise too), because when we do nothing to challenge the capitalist regime that prioritises profits over people and planet, its power over all of us grows and what is wiped out are our both our lives and traditions — the climate crisis is the death penalty in the literal sense of how it kills various life forms, and also in how it destroys culture and the possibility of practising it.

The state capitalist's actions against our people and planet dates way back. And so has the power and resistance of the people! And it is long overdue that we resurrect the local movement for our shared interests that contests the selfish interests of the elite few. As a member of NTU Financial Aid Friends (IG: @ntufinaidfriends) and Students for Palestine (@sgacadboycott), being a part of the student movements has energised

me as we make wins both in administrative shifts and moving more and more of the depoliticised masses.

As a member of the Transformative Justice Collective (@transformjustice.sg), I have learned and experienced the power of conversations, as we go door to door to engage with residents, with ordinary citizens who the state do not want caring about taxpayer-dollar-funded violence of the war against the poor disguised as the war on drugs. As a friend of the labour movement, I have seen how my friends in Workers Make Possible (@workersmakepossible) work tirelessly to support workers on the ground while building a mass movement that moves with and for the people.

As the sea moves in waves, so do the generations of people who are committed to our duty to one another. And like the sea, we move together with strength, malleability, and so many possibilities. The most sustainable solution to the climate crisis and other manifestations of capitalism is to tackle it at its core through the will of the masses, which means that there is a need to build people power to dismantle these destructive systems. For climate, for culture, for community, will you honour our history and our present to fight for a life-affirming Singapore?

RESPONSES

Ven Paolo B. Valenzuela

12 July 2025

Having lived in Singapore for three years now, I find myself constantly awed by its transformation into a “City in Nature.” Everywhere, curated green spaces blend into glassy towers and reclaimed coasts. However, beneath the urban calm, there’s an unease I can’t shake off: the boundary between the ‘natural’ and the built is not so much seamless as it is manicured. Here, nature is sculpted and staged to remind us that even the wild must be engineered to fit the island’s relentless forward march.

Zakaria’s photographs capture this paradox beautifully: kampongs replaced by towers, shorelines reimagined by concrete edges, and then fragments of heritage resurrected through facades or replicas. While there are those who fight to bring back what is lost, it begs the question: can you really bring back what time has worn away? Can the soul of a mangrove or a fishing village be reengineered once it has been sacrificed for urban ambition?

Yet, there is no denying that Singapore’s waterfronts and iconic skyline are triumphs of managed, well-paced development. They stand as proof that a small island can bend geography to its will. Land can be made, and with it, a modern identity. But as the seas rise, the country’s vulnerability has become an existential refrain. Paradoxically, projections show that climate change impacts may be severe, but unlikely to

overwhelm current adaptation strategies — if, of course, we keep building.

So we build again: sea walls, polder systems, and elevated districts. Amid this monumental engineering, the deeper question remains: how do we protect not only the island’s physical edges, but its cultural shorelines too? How do we fortify heritage so that, in our fight against rising seas, we don’t lose more of what made this place home in the first place? In Singapore, it seems, our greatest challenge is not just to keep the waters out, but to remember what once lived at the water’s edge and to decide what we want to remember tomorrow.

PEER DIALOGUE

Exactly Foundation Residency No. 18

Zakaria Zainal – *Singapore Surfacing*



PRESENTATION

18th May 2025, 3–4pm

Orang Seletar Kampong
(Sungei Temon, Johor Bahru)

SHARING OVER TEA

16th September 2023, 3pm–7pm

Exactly founder Li Li Chung's home
(East Coast Road, Singapore)

WALKABOUT/PHOTOTAKING

18th May 2025, 5.30pm–6.15pm

Kampong Temon. Visit to Seletar Community
Museum, boat ride to mangrove, mussel beds, sand
bar near Dagan Bay.

DINNER

18th May 2025, 6.15pm

Jefree Salim mom's house
(Kampong Temon, Johor Bahru)

WEN-BING CHIANG

20 May 2025



Journey



Innocence



Serenity



Encroachment



Bountiful

ADRIANE LEE

20 May 2025

The experience of meeting the Orang Seletar made me reminisce about the legend of Sang Nila Utama and his sighting of the Lion that gave Singapore its name. The pictures tell the story of the entourage meeting the first Orang Laut, the landing with all its pomp and ceremonial umbrellas. It recreates the Orang Laut showing Sang Nila Utama the mangroves, their source of subsistence and the fateful sighting in the twilight of the supposedly lion.



The Voyage



First Contact



Landing



Discovery



Sighting Singa

Speaking Laut

To follow the sea-snail's way
let water sting &
lead astray

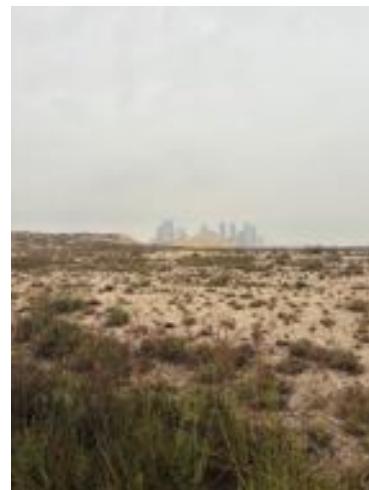
A brackishness
eats away
what had been earth

This sand's a slippery
empire & what rises
from the rubbish's

a mirage or is it
a cloud of pure
consequence –

The lights here howl
writhing like geese

What was sea
is now a riddle



The village of the Orang Seletar. I am so touched that after reading up about the Orang Seletar and knowing their village used to be close to where I live currently, before the developments started in the area, I got to meet them. It moved my heart and I am so thankful for this opportunity.



I am so amazed at the raw energy and fun with which the children played in the water, oblivious to the threat of the sea crocodiles. It just reminds me of some of the childhood fun that our Singaporean children are missing out and the kinds of childhood I have playing in the longkang.



How Jefree's son dexterously manoeuvre the boat with his bare hands and legs, stepping into the mangrove water without fear of the sharp pencil roots. This picture shows the family bond as they live off the mangrove and the kinds of Nature Education they receive in the family, which the Singapore education system should also learn to value.

Ties, tides, and times: Archipelagic living and the Orang Seletar



Visiting the Orang Seletar in Johor Bahru presented me with a glimpse into indigenous life on the (coastal and social) fringe—I consider this an empirical expression of what Carter (2019) terms archipelagic thinking. Thinking archipelagically implies a contemplation of spatialities, relationalities and governance through fluidity, mobility and permeability as opposed to a continental or terrestrial logic that privileges fixity and boundedness. Archipelagic thinking also overlaps with what Steinberg and Peters (2015) call a wet ontology, one that valorises the dynamic, voluminous nature of the sea as a medium that connects and transforms. As descendants of maritime nomads, the Orang Seletar’s everyday subsistence living (i.e. fishing, gathering, and foraging) is enmeshed with(in) mangrove estuaries and straits between Johor and Singapore. Correspondingly, thinking and living archipelagically is not just an option but an ontological condition for the Orang Seletar.

Living archipelagically entails apprehending the sea as a locus of relation rather than separation. This resonates with how the Orang Seletar understand territories, not in terms of landholdings but through customary marine routes, fishing grounds, and tidal rhythms (see Volland and Ching 2024). In this fieldtrip, I learnt about their unrestricted historical mobilities across the Johor Straits, and their ancestral ties to parts of Singapore (e.g. Seletar or Pulau Ubin). Some Orang Seletar still cross into Singapore’s maritime territories to fish or visit relatives but must possess valid travel documents to legally enter Singapore. Such

crossings are surveilled as Singapore’s coastlines are highly regulated spaces with strict border control measures, affirming Carter’s (2019) contention that continental governance colonises the sea by rendering it legible only through control and delimitation.

Coincidentally, a day before the field trip, I was invited to a dialogue with a United Nations Rapporteur (focused on environmental issues), with young leaders of the Orang Laut community and other civil society members in Singapore. I got to know from the dialogue that the Orang Laut around Singapore’s shore lines were once displaced due to land reclamation and urbanisation/modernisation projects (possibly resettling in Johor Bahru thereafter). They are now unable to dock freely in Singapore’s waters and are excluded from ecosystem services when mangroves become protected areas. These pressures throw into sharp relief pertinent concerns about their cultural legacies and aspects of environmental justice that are both epistemological and onto-political. What kinds of indigenous knowledge/practices are eroded when policy makers and urban planners rely on land-bound paradigms? The Orang Seletar, by contrast, offer a wet ontology attuned to tidal flux, mangroves, and sediment flows.

Overall, archipelagic thinking situates the Orang Seletar as custodians of ecological-indigenous knowledge as well as carriers of a different political rationality that dwells in the interstitial spaces of nationhood and legality. My hope is for a renewed imagination of Singapore-Johor as a fluid archipelago of relations, including its shared maritime heritage and more attempts at documenting the Orang Seletar’s ways of life on the cusp of change.



References

Carter, P. (2019). *Decolonising Governance: Archipelagic Thinking*. Routledge: London.

Volland, N., and Ching, L. T. S. (2024). Archipelagic Asias: Fluid Perspectives and Oceanic Methodologies. *Verge: Studies in Global Asias*, 10(2), vi–xx.

Steinberg, P., & Peters, K. (2015). Wet Ontologies, Fluid Spaces: Giving Depth to Volume through Oceanic Thinking. *Environment and Planning D: Society and Space*, 33(2), 247–264.

Singapore Surfacing by Singapore photographer Zakaria Zainal interrogates the narratives and relationships of man and the Singapore coast — both on the main island as well as the offshore islands — in light of global rising sea levels.

We all know about THE climate crisis and can comment on how hot days are, how frequent/ferocious thunderstorms and forest fires are, carbon foot print on everything, etc. *Singapore Surfacing* deep dives into just one existential aspect of this crisis: rising sea levels, where water is already being actively pumped up every day to stop it from encroaching onto “land scarce” Singapore. Yet, what exactly do we know? What do we think about it? Or are we even thinking about it? Is there anything we should be doing now? For one, what questions do we ask our MPs about e.g. the Long Island Plan?

Zakaria Zainal makes meaning of the world through his photographs. His photographs and text interrogate space and memory vis-a-vis visual projects exploring national myopia through the lens of communities on the margins. He is best known for the *Singapore Gurkhas* trilogy—visual books on the diasporic lives of this proud paramilitary tradition in the Lion City.

Other projects include: vignettes from the 2013 Little India riot; reclaiming living histories of forgotten Singapore islanders; and the declining Malay-Muslim mutual benefit organisations. Most recently, Zakaria was commissioned by the National Museum of Singapore to document the pandemic, which were exhibited in the *Picturing the Pandemic: A Visual Record of COVID-19*.

His visual projects are collected by the National Museum of Singapore and exhibited internationally. Additionally, Zakaria was once an adjunct faculty at Nanyang Technological University and a programme officer at the Asia Journalism Fellowship, where he supports and mentors aspiring journalists from the region. He graduated from Hyper Island and NTU's School of Communication. He also runs a creative studio, Zainal & Zainal.

In 2019, former Prime Minister Lee Hsien Loong said it would take S\$100 billion or more, spread over 100 years, to tackle rising sea levels. Assuming 1.5C of warming, prime real estate in the city worth S\$70 billion (\$50 billion) faces a high risk of flooding, according to Bloomberg estimates using data from a real estate company. According to former Director of the Earth Observatory of Singapore Benjamin Horton, a third of Singapore's land area is only one meter above the highest tides. The government's approach to rising sea levels is clear. “We are not planning to lose any inch of land permanently,” PUB deputy director Ho Chai Teck said in a news report.

The keynote essay, *Reclaiming Singapore: Identity and Heritage at the Water's Edge* is by **Dr Ven Paolo Bruno Valenzuela**, who is Research Fellow at the College of Integrative Studies, Singapore Management University, where he contributes to interdisciplinary climate research and science-policy engagement. He is currently working on a national project translating downscaled climate projections into actionable policy through a VR-based risk communication platform. His research interest centers on climate risk, coastal adaptation, and science-policy linkages, with a focus on “advance” strategies like reclamation and floating infrastructure.

Exactly Foundation is a not-for-profit, trademark registered label established by Li Li Chung to commission photographers to create works that stimulate discussion of social concerns in Singapore. Exactly's goal is to produce new knowledge by having viewers engage with the photographs and share them with friends and family over a two-three-month period.

