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Soft Lines:
Shorelines and Surfaces

Sarah E. Vaughn

Surviving climate change requires care for shorelines. Anthropology has offered much scholarship on the infrastructural interventions that make the boundaries between land and water imaginable. Attention to shorelines becomes an important entry point for understanding the conflicting geopolitics of climate change and related adaptation projects. More than rendering visible a quantitative measure of change, shorelines are cultural artifacts. A specific insistence of lines that converge at multiple points, shorelines draw together varied movements and gestures. And rarely do shorelines conform to one kind of surface, whether of materials, environments or bodies.

Perhaps some of the best-known innovators and excavators of shorelines are the engineers who construct sea defenses. Building on Tim Ingold's (2016) insight that lines are a platform for generating surfaces, this photo essay charts the cultural meanings

of lines that emerge from engineers' efforts to adapt groynes – a type of sea defense – to rising sea levels and erosion in Guyana. Throughout, I use the images to ask: what if humans treated shorelines as a history of surfaces? My proposition is that, if we did, then the practice of caring for shorelines may amount to something other than a reflection on the forms of injury and damage that derail daily life. Instead, we might begin to encounter shorelines as sites of creativity that are already thriving in staggered and surprising ways.

↓ A typical concrete groyne in Guyana.
Photo: Sarah E. Vaughn, 2014.

↓↓ Fisherman mending a net.
Photo: Sarah E. Vaughn, 2014.

Woman standing on a seawall near a mangrove forest.
Photo: Sarah E. Vaughn, 2014.

Built perpendicular to the shoreline, groynes trap sediment with the intention of slowing down, halting or even reversing erosion. Most are constructed of concrete, or sometimes robust wooden planks. When sediment and sand accumulate behind a groyne, this does not mean that coastal land is completely immune from erosion. Other lines are being composed in the sand, and these may counteract the role that groynes are intended to serve.

I encountered groynes while doing fieldwork in Guyana between 2009 and 2019. The engineers there were advancing the climate adaptation of sea defenses along the Atlantic coastal plain. Alongside a broader system of flood management, they were desperately trying to protect critical habitats and land-uses. Fisheries, mangrove forests, both formal and informal housing, roads, trails, boatyards, stray animals and dump sites all coexist along this coast.

A byproduct of ecological, social and technological relations, shorelines converge with other lines, even as people work hard to keep them distinct. Tim Ingold (2016) writes that lines have a genealogy: inclusive of a broader history of language and representation, lines are everywhere. Whether the decorative patterns of Papua New Guinean art or traditional Navajo blankets, lines impose patterns onto surfaces. Likewise, Dominic Davies (2023: 66) notes that "capital's ideal of the 'straight' infrastructural line," has historically reinforced moral ideas of progress and patriarchy. As Ingold reminds us, lines are never simply physical indentations. They "crystallize" prior activities and events (Ingold 2016: 66).

I take Ingold's provocation as a starting point for considering not only the ontology of lines but what they do to the world. Guyana's shoreline also radiates from and draws on numerous histories. The perhaps best known of these emphasize Amerindian 'mound cultures' and Dutch and British 'plantation societies'. Mounds in this case

are not so different from the polders integral to coastal engineering in modern-day Guyana. Both transform earthy terrain into littoral infrastructure. This is the case even though Standard English describes these phenomena in different geometric terms. One surface is a curve (mound); the other is a plane (polder). And yet, these different surfaces serve the same purpose in coastal protection. They are cultural designs that remind humans of their coexistence with an unruly shoreline.

Since the early 2010s, Guyanese engineers have attempted to capitalize on the potentials of the redefinition of surfaces. They have experimented with soft groynes – structures made of geotextile, a flexible and permeable fabric that encases tons of sand. The idea behind these designs is that soft groynes will naturally reinforce the shoreline's existing sandy terrain while preventing excessive erosion in the face of rising sea levels.

←Typical soft groyne in Guyana.
Photo: Sarah E. Vaughn, 2014.

↓Coastal mud at low tide.
Photo: Sarah E. Vaughn, 2014.

↑ Seaweed on the surface of a soft groyne.
Photo: Sarah E. Vaughn, 2014.

←The bend of a soft groyne.
Photo: Sarah E. Vaughn, 2014.

Soft groynes blend into the shoreline in more aesthetically appealing ways than concrete or hard groynes. Geotextiles are black – a color that complements Guyana's naturally muddy shores under the right conditions, especially as the sediment that encrusts on it offers a home for seaweeds and certain marine organisms. Moreover, as waves influence the shape of soft groynes, with time they may no longer appear straight. Instead, they come to resemble gigantic sea creatures, wiggling their way out of the ground and into the Atlantic. Engineers responded to this movement with great interest. As one explained to me in 2014: "We haven't been focused much on what groynes actually do to the coast – we haven't [yet] learned to appreciate them." For instance, soft groynes are intended to have little environmental impact because, as the geotextile wears away over time, the remaining sand consolidates as beach. Yet, after numerous experimental constructions in Guyana's capitol city of Georgetown,

engineers learned that geotextile has a tendency to rupture under the force of powerful waves and storm surges. Likewise, soft groynes must contend with the daily obstacles of urbanism: litter, sprawling development, wear and tear from beach users. Within a year of their experiments beginning, engineers retired soft groynes and went back to the drawing board. They therefore categorize soft groynes as having a relatively short design life – the period an infrastructure functions before it fails, breaks or becomes a liability. By contrast, the design life of groynes and seawalls built of concrete is fifty years in Guyana.

Beach in Georgetown. Photo: Sarah E. Vaughn, 2014.

On the Guyanese coast, engineers are learning to work with erosion rather than against it. Their intention is to design soft groynes that can coevolve with Guyana's fluctuating shoreline and patterns of urbanization. They perceive sea defense as a dense web of fragmented lines. Ingold (2016) has argued that the link between lines and surfaces is the act of inscription or efforts to mark or leave a trace. Inscription has been associated with what he calls the desire to express meaning, particularly the idea of "point-to-point connections" (Ingold 2016: 3). For Ingold, lines and surfaces tell a great deal about what the world is and what one aspires for it to become. Even still, there are just as many "historical sources of the straight line," as there are examples of nonlinearity and the doubt sowed by the failures of modernism (Ingold 2016: 4). Engineers' engagements with soft groynes offer insight into how people are creatively reinventing and experimenting with fragmented lines in the midst of climatological ruin.

With their appreciation for the nonlinearity of shorelines, the efforts of structural engineers in Guyana reminds us that climate change has already imposed restrictions on daily life. While much can be said about the dire futures that might be in store, shorelines reveal that plans calling for business as usual as well as a so-called radical otherwise both have expiration dates. One way of pursuing future ethnographies of shorelines would thus be to explore the varied ways surfaces come to matter and gain traction in adaptative responses, and to ask how surfaces come to represent certain people, places and things as worthy of integrating into our understandings of climate change and social histories of the engineering sciences.

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