# A Green Intervention in Media Production Culture Studies: Environmental Values, Political Economy and Mobile Production

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ABSTRACT

This article develops an interdisciplinary theoretical method for assessing the environmental values articulated and practised by dispersive or 'mobile' film production practices, aiming toward applicable strategies to make media practices more environmentally conscientious and sustainable. Providing a social and environmental study of the local relational values, political economy and ecosystem ramifications of runaway productions and film incentive programmes, this study draws on contemporary international green production practices as entryways into environmentally positive film industry change. Offering an overview of the potential use of a relational values approach to media production cultures, the essay uses two opposing models (the Michigan film incentive and the underwater cinematography culture of South Florida) in order to assess the political dynamics, social consequences and environmental threats of Hollywood's mobile practices – as well as their potential as sites, beyond Hollywood, to converge environmental values with local media culture.

KEYWORDS

Ecocriticism, relational values, environmental media, production culture studies, film and media studies, sustainability

## 1. INTRODUCTION

The ways in which humans perceive, value and treat the natural environment vary greatly: they can be individual and private, communal and public, and

– such as in the case of media industry practices – are also shaped by and help shape large economic and cultural machineries. Such institutions are very difficult to influence according to non-financial factors, such as environmental values, and yet they have deep environmental footprints. Based on recent conversations sparked between scholarly researchers and industry developers of green production initiatives, two takeaways are quite clear: there is a slow change building in film and media practice as a response to rises in climate change awareness and global environmental action; and, enacting these practices and initiatives requires a complex and interdisciplinary approach bridging environmental studies, production culture, social identity and justice, communication both regarding the environment and media management policies (Kääpä 2018), and political economy – to name only some. Towards this end, I propose a bridge between environmental values and production cultures that would play a crucial part in introducing applicable environmental strategies into the media industries. As the climate crisis continues to become more predominant in shaping twenty-first century lives, ecosystems and discourses, so is media engagement increasingly ubiquitous in hundreds of millions of daily lives – to put the latter at the service of the former will undoubtedly be crucial for significant change towards environmental protection and sustainable societies.

Media cultures are vast, nebulous and difficult to quantify in their social value formation; however, they also tend to be conscious of their potential for education, and are highly aware of the cultural capital of public image. This study offers a network of connected approaches to help move this industrial Goliath in directions more aligned with the environmental values increasingly articulated in the social media campaigns of the global environmental movement, values that are showing traction in popular surveys of the electorate (Climate Nexus 2019) and increasingly reflected on the narrative surface of mainstream screen texts. In particular, I offer exploratory theoretical bridges between a wealth of production culture studies confronting the local impacts of Hollywood globalisation – until recently 'largely uncharted territory' (Gleich and Webb 2019: 1) – and the emergence of innovative interdisciplinary approaches to environmental management and practice that draw from social sciences, ecosystem services and qualitative studies. Turning this lens on two specific local media cultures (the Michigan film incentive and the active underwater cinematography culture of South Florida), I offer inroads towards how environmental and relational values might be applied to systems of 'mobile production' (McNutt 2015) in ways that preserve local values and ecosystems and help to further the development and implementation of environmental media initiatives.

In 1946, anthropologist Hortense Powdermaker shifted her focus from the Melanesian society of Papua New Guinea to another social group of curiosity: Hollywood. Her subsequent *Hollywood, the Dream Factory* (1951) was

the only full-length ethnography of Tinseltown produced during American cinema's nascent century, and its poignant critique of the entertainment community's social norms and values may have left an impact, for the type of access allowed to Powdermaker has been denied outsiders ever since. As Sherry Ortner (2013) would find in the late 2000s, compiling her 2013 study of independent cinema, the mainstream Hollywood studios are not open to the prying eyes of the social scientist. As documented in *Hollywood's Dirtiest Secret: the Hidden Environmental Costs of the Movies*, I discovered this myself a few years ago when I approached the studios to inquire about emerging green practices: I was granted an off-the-record interview and a studio tour, after which my follow-up emails were met by an ominous response from Sony's legal team that concluded all communication. And yet the studios have actively rebranded themselves as environmental, a move assessed by Pearce (2009) and others as mere greenwashing; how might more sustainable and environmentally conscientious media production practices be encouraged? The answer may lie outside Hollywood.

The last 20 years have witnessed a proliferation of film incentive plans, in the US and Canada as well as abroad, intended to lure studios outside the walls of Culver City, fanning major productions across cities like Detroit, Atlanta, New Orleans, Miami and Vancouver (and further, to Australia and New Zealand) through a combination of state tax breaks and local talent and imagescapes. The studios no longer have borders: from Hollywood craftspeople that have been relocated, to incentivised satellite locations, to homegrown media professionals positioned delicately at the fulcrum between a global industry and a local ecosystem, this study situates production cultures outside Hollywood as barometers that reveal a range of complex problems and implications intertwining screen practices, social values and environmental impacts. Following Miller et al.'s scathing Marxist critique (2001) of global Hollywood as a machine of hypercapitalist global labour exploitation, much scholarship has focused on the political machinery, industrial logic, economic nuances and connection to space in mobile production, as seen in collections such as *Locating Migrating Media* (Elmer et al. eds. 2010) and *Hollywood On Location* (Gleich and Webb 2019), Vicki Mayer's *Almost Hollywood, Nearly New Orleans* (2017)*,* and other works on these local/global tensions.

However, the environmental impact of these policies has been largely neglected. Studies that do take environmental concerns into consideration tend to do so largely based on the 'intersections between culture and on-screen tourism place-making' (Lundberg, Ziakis and Morgan 2018: 86), or by using *environment* as an abstract substitute for *surroundings* or as a larger discussion of landscapes typically without an environmental studies consideration (Lukinbeal 2012). This blind spot may well be due to the short lifespan of the production, the difficulty in tracking relocation patterns, and the impossible quantification of the carbon impact of an industry so deeply enmeshed in a

global economy and the constant circulation of human and material resources (Corbett and Turco 2006). I provide here the basis for an environmental approach to assessing the diverse drives and consequences of mobile production, that such an approach might lead towards applicable suggestions for more environmentally responsible and locally protective media production practices.

Due to the complexity of media industry practices and the cultural challenges facing sociopolitical change in the face of the climate crisis, it is necessary to extend beyond disciplinary boundaries, to consider the benefits that ecosystem service and social science frames of analysis might lend predominantly humanities-based film and media studies, as well as to introduce environmental studies into industry analysis and production-management initiatives in the twenty-first century. While the primary data of this study is admittedly limited and rudimentary, I set forth this interdisciplinary lens as a methodological intervention in hopes of directing future research and analysis. Though normalised through a long history of location filming, mobile production is a large-scale dynamic force in the influence of local politics across the world, a constant engine of human displacement and carbon emissions and a hidden tension between migrant media practice, regional political structures and local ecosystems. As such, and especially in this moment wherein global capitalism and accelerated climate change are undeniably linked along a catastrophic path, we must attempt to reframe studies of incentive programmes (where cities or states create economic policies for long-term attraction of Hollywood production teams) and runaway productions (one-off productions shot on location outside of Hollywood) according not only to economic and industry analysis, but also to environmental – and, in conjunction to this, to environmental justice – perspectives.

In order to achieve this, I introduce into media industry studies an environmental notion of relational values, a holistic and dialogic approach currently emerging in environmental and social sciences which recasts ecosystem services according to the belief that cultural identity and core values are largely driven by our relationship to – and relationality with – natural environments. Focusing on incentive programmes in Florida and Michigan, I explore the extension of mainstream screen media practices to the social and environmental specificity of extremely different localities, and argue for a dynamic blend of social science, political economy and production culture study in an environmental and sociological analysis of the tensions that arise between globalised Hollywood and localised networks of social organisation, policy formation, environmental values and media infrastructures.

While the digital technology industry and the new Digital Hollywood it helped birth attempt at every turn to reinforce the illusion that screen media is intangible, media and film practices are very much part of a real praxis and must be understood to have great material impact on local spaces, social practices and natural environments. A film may itself not have a geographical or

regional identity, but the people who make it do, as does the constructed and natural environment where it is made, and the conflict between these two – the trans-local nature of the cultural product and the specific local impact of its production – and their place at the intersection of political economy and political ecology requires our attention. How do the strategies of incentive programmes actually play out on the ground? How do local spaces, ecosystems and relational values become part of the growth of media infrastructures and, ultimately, of larger policy strategies?

I begin here with a study of the political policy and sociocultural aims and results of typical film incentive programmes, using the Michigan incentive programme as a case study for how incentives impact – and how the impact is measured on – local media economy, cultural imaginary, human populations and the environment. I set this against the unique monopolisation of underwater cinematography in the South Florida area, through which film and television productions outsource a specific mode of film shoot to a particular ecosystem. This micro-industry, emerging parallel to the South Florida expansion of diving and fishing culture as well as the post-war boom in marine entertainment, has sprouted from a fairly small pool of active participants whose pivotal position between film industry and local ecosystem has been fraught with paradox, balancing a fine line between environmental protection and entertainment media that offers a valuable lesson in the need for environmental regulation of screen industry practices (see Vaughan 2019). Moreover, in order to assess both the social justice aspects of local labour networks and the environmental implications of such media practices, and with the aim of exploring new approaches to how local environmental values and political policy might inform more environmentally responsible media practices, I argue for the integration of environmental studies and relational values into the assessment and understanding of mobile production.

## 2. RELATIONAL VALUES AND PRODUCTION CULTURES

As both the social justice ramifications of globalisation and the data-driven language of empirical research have in recent years become more prominent across the humanities and cultural studies, social sciences and adjacent fields have largely impacted film and media studies. This has particularly happened in conjunction with reception studies and production studies, approaches which seek to describe and to analyse, respectively, how people consume screen media and how decisions are made and exercised in order to produce films, series, commercials, webcasts and video games – approaches that often involve both qualitative and quantitative methods that originated across the aisle in fields such as communication, sociology, anthropology and psychology. Nicole Starosielski's 2016 *The Undersea Network*, regarding ways in

which the formation of media infrastructures such as undersea fibre-optic cables shape social practices and the human relationship with the environment, echoes the recent sway in environmental media studies towards an interdisciplinary approach merging media studies and anthropology of localised production practices. As Powdermaker put it regarding Hollywood films, 'the social system in which they are made significantly influences their content and meaning' (Powdermaker 1950/2013: 3). And, as this social system's values and practices are exported across the world and intermingle with localised spaces, Powdermaker's legacy can be felt in the recent rise of on-site production studies and her investigation might be inverted to inquire: how does the making of the films also significantly influence these unique social and environmental systems?

In 'Bringing the Social Back In', the opening essay in the 2009 collection, *Production Studies*, Vicki Mayer lays out the goals of production culture studies as being to ''ground' social theories by showing us how specific production sites, actors or activities tell us larger lessons about workers, their practices and the role of their labours in relation to politics, economics, and cultures' (Mayer 2009: 16). Mayer nods here to production studies' potential to open the door to social science approaches that move beyond conventional film and media studies. On the flipside, in social sciences there has been slight, but promising movement towards media production ethnography; in 'Setting Up Roots, or the Anthropologist on the Set', Arnd Schneider offers an excellent model for such a study, following a major Argentinian production (*El Camino*, Javier Olivera 2000) to its shoot in a Mapuche Reservation in order to analyse how a film that explicitly sets out to incorporate an Indigenous community into its process and narrative actually interacts with that community. As I have argued elsewhere (Vaughan 2019), the object of inquiry here is not the Indigenous group but the production crew itself, and as such should be seen also as an environmental justice inquiry. Schneider's short essay not only reveals the contradictions and invasive nature of even well-intentioned mobile productions, but it demonstrates that anthropological methods offer incredible value for assessing the material and social impact of screen production (Schneider 2004: 113).

A major consequence of the institutional split between humanities and social sciences is that studies such as Schneider's tend to be absent from the radar of mainstream production studies experts. Yet, such an angle is crucial to positioning media practice within the climate crisis: as I have argued at length (Vaughan 2019) a rounded environmental approach to production cultures must take into consideration the material fact that films and other media texts are made out of natural resources, materials and energies, and also out of people: human beings with specific cultural behaviours and habits, who are guided and bound by certain worldviews, political economies, modes of communication and environmental values. What might an environmentally-driven production culture study look like? I propose here the foundation for a more

interdisciplinary and synthesised analysis of the ecological concerns, political strategies, economic logics and social dynamics that drive the formation of recent shifts in media practice, as well as their environmental effects, both within Hollywood and – perhaps of more instrumental potential in changing the environmental footprint of screen culture – outside of it.

A productive starting point has emerged from ecosystem services under the heading of relational values, an approach generated from many disciplines across the humanities and social sciences and aimed at two specific goals: interdisciplinarity and applicability (Chan et al. 2018). Relational values 'reflect elements of cultural identity, social cohesion, social responsibility and moral responsibility towards nature' (Pascual et al. 2017: 12) which we can integrate into a larger tessellation of the specific cultural values, economic dynamics and industry practices that inform local policies and cultures of media production. Aiming 'to supplant the privileged position that economics has played as the central discipline for guiding policymaking and practice', relational values scholars are pushing for a 'more even playing field within which economics, other social sciences, and humanities contribute complementary insights towards a just and sustainable world' (Chan et al. 2018: A7). Positing that 'why we protect nature' is at the centre of environmental policy, a relational values approach asserts that individual and collective values about the environment need not be understood according to the binary of our *instrumental* value for how can use nature, or our notions of its *intrinsic* value in and of itself.

Instead, by understanding it as a relational value that shapes both the natural environment and our notions of self-identity while helping to define our quality of life, relational values suggests that environmental initiatives 'could leverage social relationships to channel respect for nature' and could 'promote sustainability by encouraging more responsible relationships with products' (Chan et al. 2016). Scholars are apt to note that this argument is not necessarily new; it 'has many age-old sources' such as classical Chinese philosophy, Indigenous cultures and Greek philosophy (Neuteleers 2019: 2), and is also embedded into other contemporary philosophical approaches such as phenomenology and deep ecology (Hourdequin 2015: 76, 84, cited in Neuteleers 2019). One of the most common criticisms levelled at relational values (even by its strongest proponents) is that it has not necessarily arrived at unambiguous or clear interpretations of its object of inquiry. While this is not the space to consider the philosophical crux of this ambiguity, regarding our ontological relationship to nature and our consequent ethical responsibilities to it, it *is* the space to consider its policy-oriented differentiation.

Neuteleers (2019: 4–5) convincingly points to the problematic vagueness of relational values as a concept, beginning with its role in the IPBES framework (which terms it 'Nature's Contribution to People' or NCP, so as to distinguish it from Ecosystem Services and thus to include wider ranges of traditional ecological and indigenous perspectives as well as diversity in

the sciences). A consistent problem with recent discussions of relational values is its over-inclusiveness, ranging from social principles of environmental justice to symbolic purposes of identity, to empirical notions of subsistence and health (Arias-Arèvalo et al. 2017). Ultimately, this nascent disciplinary and terminological debate aims on one hand to arrive at how we might determine and frame the importance and worth (or 'value') of environmental health and biodiversity, and on the other to convert this theorisation into applicable suggestions for policy development and incentivisation for individual and industry behaviours. Though it has mostly been theorised in conjunction within environmental management, I argue that a relational values perspective would prove invaluable to understanding the complex dynamics of the culture/nature divide manifested in the use of natural resources and the role and treatment of natural environments in popular screen representation. And, perhaps more importantly for an industry with such wide-ranging reach and such devastating environmental impact, this conceptual framework and its suggested practical applications could help to generate more environmentally healthy, publicly supported, and politically sound innovations in media policy and practice. It benefits this goal to first take a critical look at the recent environmental strides of mainstream film culture.

## 3. GREENING HOLLYWOOD

Environmental, climate and weather-related factors have long been a part of the American cinematic narrative. Brian Jacobson (2015) documents how the pre-Hollywood studios' planning and architecture were shaped by the necessity for sunlight, steady electricity and other resource dependencies. While the move to California was partially fuelled by a desire to escape the monopolistic tyranny of Thomas Edison's Motion Pictures Patents Company and the pervasive anti-Semitism of grounded north-eastern institutions, major industry histories have framed the transition out west as one of mostly environmental incentives. Kristi McKim provides a good summary of this historiography: a tale of open spaces, long days and a sort of topographical smorgasbord whereby studios '[b]enefit[ed] from Californian weather, which provided good light and a lot of sunshine, and a varied environment that opened onto the sea, desert, mountains, small towns, and the bustling urbanscape' (McKim 2013: 51-52). It was, in relational values terms, a perfect storm of natural contributions to quality of life, including climate comfort and predictability, topographical diversity, social opportunity for people persecuted and marginalised by East Coast institutions and optimal resource access for a cultural medium dependent on sunlight.

Ever since that move, the film and television industry has had a deeply-rooted relationship with local and global resource use, local governmental

policies regarding water and energy access, climate control and waste production. The studios themselves, which installed autonomous water tanks and utilities networks but also relied heavily on surrounding resource flows, have long been an integral node in the environmental infrastructure of the region, not to mention the generator of a huge carbon footprint and a frequent source of interruption to local ecosystems beyond LA. Despite this ongoing history of problematic environmental impact, however, Hollywood has *also* recently emerged as an instrumental purveyor of green rhetoric, launching initiatives meant to reform its brand as a bastion of liberal politics and to streamline its economic model according to higher-efficiency sustainability practices (for more, see Vaughan 2019).

Most studios have limited this to what is popularly known as 'greenwashing', a mode of corporate environmentalism that flashes the environmental card – replacing disposable water bottles with water coolers and paper memos with email – while continuing with the business of capitalist excess as usual. For example, in 'Greenwash: Disney's green intentions are pure fantasy', *The Guardian*'s Fred Pearce addresses Disney's public announcement that action on climate change is 'urgent' and requires 'fundamental changes in the way society, including businesses, use natural resources, and Disney is no exception'. But, as per the industry norm, token gestures were made to sustainability without industry-level changes: 'Disney are greening some of their activities, but they are not greening their business model' (Pearce 2009). This is the general trend in the greenwashing of deeply enmeshed media industries, and belies a hypocrisy that could be challenged by policy platforms based on relational values, at least on local levels where media practices are less crystallised and alternative models might be incentivised by environmental organisations and local governmental bodies.

Moreover, unlike most major industries the film industry's environmental impact is not regulated; Hollywood has historically done a good job of avoiding governmental regulation on many fronts – such as content censorship – by erecting internal bodies and protocols, and this is no exception. Hollywood's environmental turn should therefore be understood as a multilayered strategy, rebranding the industry and streamlining production practices while also shielding it from the eye of government and the disfavour of public opinion. To borrow the words of Richard Maxwell and Toby Miller: 'This is all at once a business plan, an element of the company's environmental policy that markets its corporate responsibility, and an attempt to elude democratic regulation' (2012: 84) In personal interviews conducted over the phone, industry sources led me to understand that this shift is occurring on three fronts: messaging, including greenwashing techniques mentioned above, as well as the creation of the Environmental Media Association (EMA) and, of course, the annual EMA awards; the adaptation of guilds and unions, including the formation of the PGA Green to encourage green production and to offer a best practices guide;

and transparency regarding the modes and impact of production methods, through oversight bodies such as the Motion Picture Association of America and especially along lines of waste treatment. Critical studies and industry opinion agree that one of the great obstacles to any systematic change is the fluid nature of the production process: production companies are often formed specifically for one film, then disbanded after a few months when the shoot is over. This, coupled with the many stages of a film (development, shooting, post-production, marketing), makes any uniformity – as well as any oversight or regulation – nearly impossible.

While a top-down complete overhaul of the capitalist foundation of a massive American industry is unlikely, Hollywood's production scope extends beyond Los Angeles, and for over half a century various local industries of different degrees of permanence have grown up across the US and beyond. These mostly include the incentivised pop-up production communities in cities like Detroit, mid-sized industries where major media institutions already existed such as Atlanta, and specific on-site location productions run by temporary Hollywood implants (such as HBO's *Treme* in New Orleans). They are not intentional products growing from the base of local natural and cultural specificity, but are the manufactured result of tax incentive programmes and local aesthetic and geo-specific offerings that lead Hollywood professionals to move across the country – 'trans-local' in that they are locals in LA, and connected to LA's social and relational value system, but residentially and existentially local in a new city. South Florida's underwater cinematography community, on the other hand, is specific to its ecosystem: the sub-tropical Atlantic is shallow, clear and relatively warm for the entire year, while the proximity and eased regulations of the Bahamas have enticed productions for decades. Moreover, a generally shared casual environmentalism and love of the outdoors has helped cultivate a small media infrastructure that, bolstered by Hollywood productions in need of sunshine and underwater shots, acts as intermediary between industry interlopers and increasingly fragile reefs, beaches and wildlife.

Different production cultures have their own unique cultural, economic and ideological drives towards adopting environmental practices, which must be understood both in terms of industry policy and local relational values to the natural world. Accordingly, let us now turn to the relationship between local production communities, global film practices, and cultural identity, and how this dynamic defines humans' relationship to the social fabric and ecosystem of which they are a part. By addressing these complexities through a relational values lens infused by the relational thinking increasingly popular in sustainability science, in particular acknowledging ecological care as emerging from economic and social structures, as being embodied and practised, and as being situated and political (West et al. 2018), we might be able to move production culture studies towards more applicable stances and suggestions for environmentally conscientious media practices.

## 4. MOBILE PRODUCTIONS AS INVASIVE SPECIES

As pointed to earlier in this article, the popular narrative holds that Hollywood was invented as a destination for north-eastern and Midwestern companies in search of a blank sociocultural canvas and optimal environmental circumstances for shooting in natural light. In other words, Hollywood was itself a runaway production, and for a culture industry designing narratives set across the world but for so long limited to the borders of studio lots, '[f]ilm production has always relied on geographical substitution' (Landman 2009: 143). Still, runaway production has been refined as an important weapon in the Hollywood arsenal, with production reach growing increasingly with the postwar proliferation of independent production and the Marshall Plan's expansion of US political economy across much of Europe. As decentralisation moved productions to non-permanent transitory locations (which may, depending on the demands of the film, mean anything from Monument Valley, Arizona to Rome to a Thai island), the percentage of films shot outside of Hollywood rose forty per cent between 1950 and 1973, tipping nearly to half of all films by the mid-eighties (Scott 2014: 49).

Runaway production has for the most part been understood or contextualised within financial or economic terms, as what Allen Scott calls 'economic runaways', which enjoy reduced production costs, low wages and rental rates, tax credits and subsidies. However, there is also an aesthetic, stylistic and ambient facet to runaway production, more prevalent in what Scott calls 'creative runaways', which seek realistic outdoor locations, embrace new shooting methods and sometimes specifically establish a connection to the location itself (Scott 2014: 54). We might view these as a film culture version of relational values, in which the material process of the film's making and the cultural identity of its finished product blend into a dynamic manner of drawing value, resources and quality of product life from the location's specific aesthetic qualities and resources. What the location stands to gain is multifold, though slippery: the production acts as a tourist attraction (see Lundberg, Ziakas and Morgan 2018, among other studies), the process ideally helps to train and configure an infrastructure of semi-permanent local media professionals, and the exhibited text helps to put the local landscape on screens worldwide.

The production logic is basic global capitalism: while the studios entail travel costs, it is cheaper – at least on the production line – to film elsewhere than in Los Angeles. However, the real cost of production is to more than just the financiers, and the balance sheet cannot be determined only in dollars and cents. The economic capital saved comes at great cost to the natural environment: most simply, transport is one of the biggest factors in our emission of greenhouse gases, and this greatly magnifies a production's travel footprint. Moreover, it is a process that by its rote nature alienates incoming crews from the local ecosystem and community. As Schneider writes: 'Feature film

production (at least on the set) because of its specific, almost ritualised work-ing practices leads to a kind of alienation from the surrounding reality[…] A self-focused crew, involved with routinised requirements of shooting, is largely cut off from any meaningful dialogue with indigenous people' (Schneider 2004: 114) While visiting productions help to buttress local service industries, stimulate word-of-mouth excitement, and are mostly beholden to a degree of decorum that will allow them to return for subsequent productions, they tend not to step outside of their industrial routines.

This may be less egregious in cases where the production and location are less culturally and economically dissimilar, such as the much-studied case of incentivised production in New Orleans following Hurricane Katrina. While Vicki Mayer traces a pretty condemning genealogy according to which post-Katrina incentivised production plays into the city's history of racial and socioeconomic exploitation and inequality, Helen Morgan Parmett (2012) of-fers a diachronic analysis of *Frank's Place* (1987–1988) and the post-Katrina *Treme* (2010–2013) in support of the claim that 'the role of cultural and creative industries in these practices have changed the role that television productions play in cities' (2012: 194). I will return to Parmett's analysis in addressing is-sues of race and praxis in Detroit's runaway film culture, but note that while 'media participates in the production of material space in the city' (ibid.) this material space consists also of resource demands, ecosystem disruption, and an interruption and even reshaping of local relational values.

In some cases, the costs can be extreme. James Cameron's *Titanic* (1997), filmed mostly in the village of Popotla, Mexico, on a 40-acre oceanfront lot purchased by 20th Century Fox just for this production, which the studio re-ferred to it as the '100 days studio', opened for business 85 years to the day after the ship was launched. One tank held seventeen million gallons of water and the other held five million, the water being culled directly from the ocean, polluted during its cycling through the production, and then pumped back into local waterways. The film's creation of local jobs for a struggling Mexican film industry earned director James Cameron the Order of the Aztec Eagle from the grateful Mexican government, but also ruined a local marine ecosystem and decimated a fishing community (Maxwell and Miller 2012: 69). In this case, NAFTA's political economy manifested its imperialist logic and proved dev-astating for local relational values. The making of Danny Boyle's *The Beach*, which raised tourist awareness for its Thai setting, destroyed the on-location dunes that were naturally sculpted monsoon buffers for the local ecosystem and human population (ibid: 70). In fact, as of writing this, Thailand's Maya Bay – made famous by the film – has been closed to allow its coral reefs to recover from the environmental impact of global warming and the environ-mental impact of thousands of visitors each day (Reuters Staff 2018).

As such, we could actually view runaway productions as an invasive spe-cies: a kind of living organism that is not native to an ecosystem and causes

harm – to the environment, the economy, or even human health. Beyond this, though, it allows Hollywood's ideological toolkit to insert itself into diverse social configurations and specific local ecosystems, spreading beyond the confines of what Powdermaker deemed a somewhat controlled laboratory. While some scholars (Landman 2009; Parmett 2012) identify particular cases where not-Hollywood productions actually engage with and incorporate local creative agency and perspective, others (such as McNutt 2015) note the degree to which mobile productions often leave these very people behind in their quest for the next hot incentive. What is not mentioned in any of these is the environmental impact of this circulation. In pursuit of an environmental component to complement the social perspective offered by emerging production culture studies, I turn to two different cases, Michigan (2008–2016) and Florida (2010–2016), in terms of their political economy, their cultural goals, and their social and environmental impact.

## 5. IMPORTED TO DETROIT

Signed into law by Democatic Governor Jennifer Granholm on 7 April 2008, the Michigan Film and Digital Media Incentive laid the legislative groundwork for a tax incentive programme that would bring film and television production to Michigan, prompt the development of local media infrastructure, help to rehabilitate the state economy and complement the state's new tourism campaign. Among these goals, the incentive bill actually stipulates only one primary regulation on applicants: to guarantee promotion of 'Pure Michigan', a large-scale campaign designed to offset collapse of the auto industry and to market Michigan according to its relational values about its north-Midwestern lake-strewn natural environment. However, despite the state's bid to enhance tourism around the concept of a 'pure Michigan', the film incentive programme offered no guidelines regarding responsible waste disposal, minimising pollution or related practices. There is no mention of media production's environmental ramifications: the two driving forces are economic (does this generate income and/or jobs?) and representational (does it formally depict Michigan according to a relational value about the importance of pristine nature as a component for human quality of life?). The 42 per cent budget incentive offering brought in 229 approved projects over four years: USD$392 million was approved on USD$1 billion in qualified expenditures in Michigan during this time, with a USD$47 million outlay in the first year leading to the creation of nearly 2,800 jobs. Economist David Zin (2010: 34) argued that the film incentives had a positive impact, yet acknowledged that this impact is not necessarily tangible, closing his 34-page issue paper with: 'As with other types of incentives and credits, whether the relationship of costs to benefits is acceptable is a decision for individual policy-makers'. What shapes the decisions of

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individual policy-makers, and how might we employ communication strategies accordingly to optimise policy action that is both environmentally conscientious and protective of social justice in local communities?

Cost and benefit underlie such incentives, but what is on the other side of the bottom line? The goal of local politicians is certainly infrastructural and employment-oriented; as Steven R. Miller and Abdul Abdulhadi argue in the 2009 MSU Center for Economic Analysis study, 'Michigan has created an incentive package to not only draw filming crews to Michigan, but also to attract a whole industry in one effort to offset Michigan's declining manufacturing base' (Miller and Abdulhadi 2009: 1). This was meant to attract fresh labour and to erect a foundation for media professionals in the area, an attempt to form a 'deep local supply chain' countering the previous flight of Michigan's educated and creative work force to states with better job prospects (Miller and Abdulhadi 2009: 8).

Moreover, the goals and impact of incentive programmes is not limited to what is brought into the space – they also include how the space is exported, and like most incentives the Michigan programme aimed not only at building local media culture but also at popularising the state's image on screens across the world. An extension of the 'Pure Michigan' impetus for the incentive was an attempt to export what Miller and Abdulhadi refer to as Michigan's 'diverse environment' to the film-viewing world (2010: 10). Beyond the concrete issues of employment and economics, this production mode strives to upload local spaces and the product of local labour to a symbolic visual realm bereft of accountability to environmental health and community ethics. Janet Ward situates such practices in terms of launching a city's appearance and identity into 'a competitive realm of the virtual in which image-city competes with image-city' (Ward 2004: 250).

For Detroit, this mostly meant its dilapidated urbanity being targeted as a virtual substitute for any dystopian urban space, such as it was used in the *Transformers* films (2007–2014, excluding 2009's *Transformers: Revenge of the Fallen*) and in *Batman v Superman* (2016). There are countless anecdotes about how the financial incentives and post-industrial smattering of abandoned buildings and lots made it easy for big-budget action films to go there to blow it up – literally. In his bittersweet 2013 account of Detroit's paradoxical renaissance, local journalist Mark Binelli recounts how he sneaked on to the set of the *Red Dawn* reboot being shot at his old high school, only to observe a mobile production run amuck with explosions destroying the grounds where he passed his adolescence. He notes how one crew member bragged: 'We were setting off major explosions in the middle of downtown! Seriously, man, there's nowhere else in the country they'd let you do something like this' (Binelli 2013: 261).

Such anecdotes bely a vicious vision of outsiders with no regard for local cultural heritage and relational values; yet, this tendency to rely on Detroit's

urban aesthetic as a space to be exploded is also part of a city rebirth that included the proliferation of greenway bike path and shared urban gardens. As the incentives brought films to the city, they brought industry workers, generated word of mouth and replaced a creative class. Performance artists and film craftspeople moved to Detroit to be in the centre of the action, and they bought and renovated the dilapidated houses. The jobs surrounding the incentives changed the demographic of the city and altered thousands of families' lives, impacting the city identity, population and natural environment in unaccounted ways as downtown Detroit rebranded itself with greenways, microbreweries and Shinola pride.

The incentives, and the human circulation that they spurred, is indicative of a mode of gentrification greatly impacted by external forces as opposed to internal social values and community histories. In a city historically marked by racial segregation and environmental injustice, this population influx cashed in on what Mayer calls the 'aura of Hollywood' (2017: 105) without concern for the local material dynamics of a city where the areas now being snatched up were also laced with public service problems, whereby poorer and non-white neighbourhoods were being left without electricity for traffic lights and where utility companies were threatening to cut the water of poorer homes. In 2016 the city of Detroit was even cited by the United Nations for human rights violations based on its water shutoff policy (Howell et al. 2019: 64). This is not categorically the case with all mobile productions, and Parmett has argued systematically for a resurgence in site-specific television in which a 'TV renewal' is crucial to a period of urban regeneration (2018: 42), through which certain productions (such a *Treme* with New Orleans or *Portlandia* for Portland) become 'inextricably intertwined with the decisions and policies aimed at particular configurations of racialised spaces within the city and the material production of city space and citizen-subjects' (Parmett 2012: 194). However, Parmett's analysis of New Orleans is debated by Mayer, who places *Treme* and other productions in a much larger social context and cultural history, revealing these site-specific television shows to be very much the exception as opposed to the rule of mobile production – in this case, in the singular context of post-Katrina community trauma.

In a more interdisciplinary relational value approach to production cultures, incentive plans can be identified as lacking an important environmental and social component, one that might in the future be adjusted to account for how such productions and population shifts weigh upon natural resources and public services, and how they produce unexpected forms and quantities of waste and infrastructural demand. Although incentivised productions in Michigan were completed far from the watchful eye of the Producers Guild of America, every person I spoke to who worked on the ground in Michigan notes that similar environmental and sustainability measures were taken on these productions as currently are in Hollywood; and that, just as in Hollywood, they were

superficial, lax and primarily meant as token symbols of environmental concern. However, as one producer and location scout who was based in Detroit for the five years of the incentive programme points out (and as comes across as an extension of the calculated kindness for which Hollywood is notorious), it was important to leave places in better condition than you found them, as you would likely need to return at some point.

Until you don't. The producer that I interviewed has since moved to a new city, as have most film workers that originally moved to Detroit and bought homes and started families there. The cost-benefit gauge of the incentive was constantly challenged by conservative politicians, who argued that the economic costs were high and the benefits difficult to assess. Resistance became far more vitriolic when Granholm was replaced by Republican venture capitalist Rick Snyder in 2010. In August 2012, Raleigh Studios defaulted on its bond and left town (Story 2012). Sam Raimi's *Oz*, (2013) which received USD\$40 million from the state, left a series of debts that the city of Pontiac struggled to collect from Disney. As Emergency Manager Louis Schimell pointed out, 'This is a glamorous industry if you want to talk about Hollywood, but it's not very glamorous for the municipality that wants to collect something' (Story 2012). Snyder fully eliminated the programme in 2015 (see Vaughan 2019).

This snapshot reveals Michigan to be a standard model for conventional film incentives: liberal policies coupled with economic optimism and a short-term blossoming of nationwide attention on the shoulders of local social and environmental disruption, with any long-term benefits cut short by the grinding contestation of conservative state politics. 'Pure Michigan' did not prove to be the expression of a localised collective value about nature that connected to film culture. However, some local media infrastructures arise for different reasons, providing a uniquely dynamic relationship between local relational values, political economy and the encroachment of Hollywood production. I will now turn to perhaps the most unique of such configurations: South Florida.

## 6. SOUTH FLORIDA UNDERWATER CINEMATOGRAPHY

With the rampant success of Brian de Palma's 1983 *Scarface* remake and the zeitgeist-defining television series *Miami Vice* (1984–1990), the casting of Miami across small and big screens and would help the city transition on-location success into a systematic policy in the late 1990s. By 2000, Miami-Dade County was responsible for half of the state's media production, hosting popular franchises *Bad Boys* and *The Fast and the Furious* and TV's *Burn Notice* among other films and television series (Associated Press 2002). Preceded by the slow growth of a state rebate programme initiated in 2003, the Entertainment Industry Economic Development Act passed in 2010, allocating USD\$242 million in tax rebates and credits over the following five

years, which drew enough production to Miami to place it third in national media production behind LA and New York. Moreover, due to its demographic diversity and proximity to the Caribbean, Miami also became the focal node for Latin American and Spanish-language media (Sinclair 2013).

Summarising the economic logic behind such politics, Miller and Yúdice refer to Miami as 'a stunning example' of 'pump-priming' fiscal stimulus strategies meant to boost local economies through financial incentives (2002: 80). As we saw with Detroit, though, the pump ran dry when conservative policy-makers managed to push through a different understanding of the cost-benefit analysis of film incentives. And, though state politicians even channelled additional funds into the Florida incentive due to its success, the Koch Brothers managed in 2016 to lead a systematic strangulation of the programme through their 'Americans for Prosperity' lobbying group, a conservative front for donating money to state senators and representatives that were willing to block further support (Robb 2016). The Florida incentive programme became collateral damage in the demonstration of conservative might on the state level in a national push to the neoliberal right.

Unlike incentive hotbeds such as Michigan, though, the South Florida coast, with the Florida Keys adjacent and the Bahamas within tight proximity, has long been a hub for underwater cinematography in film and television, and today nearly all underwater shots and sequences are filmed in this area due to its year-round warm weather, clear water and economic ease. This mecca of underwater cinematography has a long and largely neglected history – one that entangles local social habits and relational values within the institutionalisation of national ideological views justifying the exploitation of nonhuman nature. Florida native Ric O'Barry, a diver who began his career in dolphin capture and training for the Florida Seaquarium and, subsequently, emerged as one of the nation's most vocal activists for animal rights, is perhaps most illustrative of this tension between local relational values and capitalistic entertainment practices. O'Barry transitioned his diving skills and knowledge of marine wildlife to the lucrative demands of popular entertainment, moving from the Seaquarium to television as the capturer and head trainer of the five dolphins that collectively played Flipper on the popular eponymous 1960s TV show. However, in 1970, after production of the show had ended, Kathy – the dolphin that most often played Flipper – died in what O'Barry considered a suicide (she did not resurface for air); that same year O'Barry founded The Dolphin Project, an organisation for public education on the plight of dolphins in captivity and for the catch-and-release rehabilitation of dolphins in North and South America (Vaughan 2019). O'Barry's personal trajectory offers a narrative paradigm for how relational values with the natural world may be coopted by anthropocentric cultural practices, exploiting wildlife and the environment – and, just as easily how these same relational values may flip back to an active opposition to such values. The latter is what could be used by local

non-profit and advocacy groups, or progressive renewable energy concerns, to help incentivise more radically environmental on-set practices for local media productions.

Perhaps even more emblematic for the local cinematographic community is Ricou Browning, popularly known under the guise of 'Gill-man' in reference to the costume he donned in the *Creature From the Black Lagoon* film series. Raised in Florida and getting early experience as an underwater stuntman for local novelty acts, Browning also worked as a writer for the *Flipper* film and television series, and moved on to directing underwater scenes for five decades of film and television (including an Oscar for special visual effects in 1965 for *Thunderball*). Browning was inducted into the Florida Artists Hall of Fame in 2012, and his son – Ricou Browning, Jr. – has worked as marine coordinator and water safety director for countless films and television series, from blockbusters like *I am Legend* to dramas such as *Up in the Air* – not uniquely beach-based or aquatic films, but all films and series that for one reason or another require underwater cinematography.

Ricou Jr. plays a central role in the area's busy location filming infrastructure as Marine Coordinator; while mobile productions have to bring in necessary environmental engineers or munitions experts in order to solve logistical problems, the Marine Coordinator acts as an intermediary between the production and local licensing offices and as on-site supervisor to maintain production protocol. He is consequently the official line of defence between mobile productions and the local ecosystem. As both part of the film industry *and* part of the South Florida ecology, Browning often contracts familiar faces from the local media world, including cinematographer Pete Zuccarini, an underwater Director of Photography whose extensive credit sheet includes recent films *Life of Pi* (2012), *All is Lost* (2013), and *Jurassic World* (2018). As Browning told me, because the area contains sensitive reefs and wildlife balance, he wants Zuccarini not just because he is an expert cameraperson, but because he is a locally born and raised diver who knows and cares about that specific ecosystem (Vaughan 2019).

The logic behind such hiring practices has been complemented by a recent rise in the sense of environmental concern on set, and could be further capitalised upon were relational and environmental values to become more central to local media policy and political economy. The interest is there: Browning, Zuccarini and others note an increase in environmental and sustainability measures, as well as a general sensibility toward protecting the environment during on-location productions. More than anything, though, filmmakers' rising attentiveness to their on-site locale appears to be part of a delicate balance between invasive crews and local access: as Browning put it in a telephone interview, 'to make movies you have to be welcome back the next year'. Investors, accountants and lawyers are running the studios today, and they realise that it is in their best interest to maintain a good rapport with their satellite

locations, and finance could be leveraged through local political economies to invest more into environmental health. The impact of filming on such locations has progressively lessened, however, due to the advent of digital practices. With smaller equipment and bigger memory, the process is expedited and the production minimises the duration of its interruption of fragile coral reefs and native fauna. However, for large-scale blockbuster shoots, it remains mostly business as usual, with vast fleets of motorboats, copious use of fuel and unbridled disturbance to the local ecosystem.

The visibility offered in South Florida waters and the infrastructure of media production that has grown up there over decades guarantee we will continue seeing underwater shots from these sub-tropical waters. However, the image of site-specific landscapes and natural settings can also be faked: the 2017 *Baywatch* film was shot in Savannah, despite the much muddier river waters, in order to access Georgia's incentive programme. It was more cost-effective for the producers to build set tanks and use green screen processes in order to simulate the effect of oceanic waters. This reveals an increasing problem since the incentive provisions were cut off in Florida, leading to what amounted to a 'brain drain' of creative professionals leaving the state (Deruvo 2016). The impact of this human circulation on social communities and especially local ecosystems must not remain underappreciated and unexplored, and to assess it according to dynamic terms that include political economy and relational values would highly benefit policymakers and industry managers.

## 7. CONCLUSION

From Los Angeles to Wilmington, Wilmington to Miami, Miami to New Mexico and Atlanta, state incentives create demographic shifts and impact human lives in ways that are as difficult to quantify as is the symbolic impact of having your communal space transformed into a nebulous screened 'somewhere' (Vaughan 2019). More critically at this climate precipice, though, we must consider the environmental ramifications of this facet of our film and media culture. Film productions use vast amounts of energy and water, generate greenhouse gases and material waste, and transform ecosystems; but they also might hold the potential for widespread changes in media practice. Consequently, we must attempt to understand the complexities of mobile production cultures without categorically viewing them as negative or positive – these dynamic production cultures are too complex to be assessed as fully either. Paradoxically, local politicians who champion incentives for economic and cultural reasons ignore the challenge they may pose for other political agendas as well as the negative environmental impact of conventional screen production practices that they entail. However, though perhaps less prioritised than social values by those who are elected by humans, environmental values

are increasingly central to cultural identity and policy debate, and as such must be integrated into such discussions through interdisciplinary and collaborative initiatives connecting political economy, industry policy and relational values.

This is not to disparage the potential benefits of film incentive programmes, nor to charge Hollywood with full responsibility for the priorities and practices of other cities and states, but to encourage more dynamic ways of understanding how such programmes impact and interact with specific natural environments and the values of those living in and with them. As Florida debates legislation to renew its film incentive programme, its policymakers would do well to consider the relational values of local communities not only as something that can be marketed to Hollywood, but that should also be protected from the assembly line of the global marketplace. Otherwise, local environmental values and ecosystems are merely props and backdrops in Hollywood's global backlot, and the culture of mobile production is doomed to repeat the patterns of the past, failing local communities and traumatising local ecosystems.

## ACKNOWLEDGEMENT

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