DredgeFest: Social Experiments in Sedimentary Landscapes

Sediments—gravels, sands, silts, and clays—are base infrastructure upon which other infrastructures are inscribed. How sediments move, accumulate and are restrained or accelerated underlies the production of space, both designed and undesigned. Consequently, the human manipulation of sediment occurring planet-wide can be used as a lense to articulate the extent, spatial qualities and functioning of the Anthropocene.

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DredgeFest is an event series which is dedicated to examining the practices, technologies, and actors implicated in this sprawling constellation of human manipulations, through the media of symposia, exhibitions, landscape tours, and design workshops. Designed with the explicit aim of extending architectural agency into this relatively novel field, DredgeFest tactically occupies an uncertain space between design academies, publics and the dredging industry, moving nimbly amongst these constituents while instigating new social, technical, and organizational alliances.[1]

The core of this paper is a description of the intentions, activities, lessons learned, and future plans of the DredgeFest series. We frame DredgeFest as a set of active social experiments, analyzing these events in reference to the research and disciplinary questions suggested by the call for "Design Agency by Engaging Industry". This focus on social experimentation is borne out of our problematizing of dredge landscapes and the dredging industry, as informed by studies of infrastructure and sociotechnical systems. Ultimately, we aim to demonstrate that DredgeFest reveals operational patterns which can broadly be of use in efforts to link design and industry through academic practices.

INTENTIONS

DredgeFest is conceived and produced by the Dredge Research Collaborative (DRC), an organization which the authors of this essay helped form and remain active in.[2] The DRC began as an association of researchers performing speculative design research on dredge processes and landscapes. While we remain convinced of the efficacy of speculative design as a research tool, particularly for disciplinary advancement within the architectural design disciplines, we quickly realized that the scope, scale, and inventiveness of current anthropogenic sedimentary manipulations exceeded our own initial speculative efforts.[3] These manipulations are ubiquitous, yet go relatively unnoticed as the base infrastructures they are,

and, as recently as five years ago, were largely unconsidered as a realm of potential agency for architecture.[4]

Based on our initial research, the DRC decided to learn more deeply from the existing territories, players and engineering culture of dredge landscapes. Thus, a significant component of our activity is aimed at revealing the magnitude and format of anthropogenic manipulations of sedimentary flows. This revelatory effort might be understood as performing *infrastructural inversions*—"taking what have often been seen as behind the scenes, boring, background processes… and bringing their contribution to the foreground"[5]—or *unblack-boxing*—challenging the tendency of infrastructural networks and assemblies to be "taken for granted" as "essential prop[s] to society and the economy which few take much notice of".[6] This theme runs consistently through the output of the DRC, including DredgeFest, publications and research projects, whose topics range from the physical deployment and aesthetics of sediment-packed geotextile tubes to regional cartographic studies of the movement of dredged material. Within the events themselves, the landscape tours provide the most intensive and direct inversions, as they immerse tour groups drawn from design, the dredge industry, and the general public into dredge landscapes, rendering the inaccessible and withdrawn as materially tangible and comprehensible. In so doing, they are situated within a nascent stream of experiential and landscape-based infrastructural literacy projects, with a lineage traceable to the work of Matthew Coolidge and the Los Angeles-based Center for Landscape Interpretation.[7]

For the DRC, performing these infrastructural inversions serves to foreground vast networks of anthropogenic sedimentary manipulation, which otherwise go relatively unseen. Holistically, these aggregate networks and effects compose what we have termed the dredge cycle:

> "[Dredging] can only be properly understood within the context of the wider set of human activities that manipulate sediment. Dredging is a key moment, but never an isolated moment. It is connected through the movement of sediments to a vast array of other processes and landscapes: erosion control technologies like silt fences and cellular confinement systems; dams, arresting vast quantities of river-borne sediment; urbanization, agriculture, and deforestation, all accelerating erosion; techniques of recovery, remediation, and disposal; and landscapes and other products made from the sediments collected in dredging, from new islands to decorative urns. Each of these landscapes and processes sees human activity affecting and precipitating sedimentary movement. Collectively, these manipulative acts can be understood as a cycle, analogous in scope and ambition to familiar natural cycles such as the water cycle and the rock cycle, though operating with much greater speed."[8]

This conception of dredge as a component of a cyclical process of networked manipulations is fundamental to our engagement with the dredging industry and has structured three guiding principles for DredgeFest events.

BEYOND DREDGE

The act of dredging—scooping up sediments underwater and transporting them elsewhere—is a tangible point of entry into the dredge cycle. But it is only a 'key moment' within the larger assembly of anthropogenic processes described above. DredgeFest encompasses this expansive range of human activities altering geologic processes, from "restoration sedimentology" at deltaic scales to the deployment of silt fences and turbidity curtains in site engineering.[9]

THE ANTHROPOCENE

Like the dredge cycle, DredgeFest overtly acknowledges the degree to which we have altered geological processes. As geologist Roger Hooke has pointed out, humans are currently the preeminent geologic agents on the planet. Collectively we now move up to 45 gigatons of earth annually, with 10 of those gigatons consisting of unintended feedback effects of our actions.[10] Within the United States specifically, it has been estimated that 30 tons of earth are moved per person every year.[11] Such novel stratigraphic signatures distributed across the surfaces of the earth are the definitive indicators of the Anthropocene as a geologic epoch.[12]

Following its emergence within geology, the concept of the Anthropocene has rapidly infiltrated discourse in many disciplines, including the biological and ecological sciences, the humanities, and design fields.[13] Within these discourses, the Anthropocene defines human capacities and propensities to operate at geologic scales (temporal and spatial), situating those effects in relation to earth systems and cultural practices. The thrust of this work reinforces the concurrent notion of the "Great Acceleration" of environmental processes through human action, an acceleration which differentiates the scope and speed of human activity in the 20th and 21st centuries from all prior eras.[14] DredgeFest's frame of sedimentary manipulation articulates a particular material entry into these conceptual realms. In organization and content, DredgeFest seeks to integrate scientific and engineering questions typically framed in terms of efficiency and utility with socio-political and cultural concerns about the status of humans as preeminent geologic agents.

LANDSCAPE NETWORKS, GEOPOLITICS AND WICKED PROBLEMS

DredgeFest was conceived as a method to examine regional manifestations of the dredge cycle by taking the constellation of processes implicated in that cycle and landing them within specific geographies. Thus every DredgeFest is particular to its host territory, explicitly working to uncover that region's distinctive qualities, processes, and networks of actors.

These networks are complex: in every locale, the dredge cycle implicates a diverse multitude of actors and agencies, such as corporate contractors and engineering firms, federal and local government agencies, ports, scientists, research institutions, and grassroots activist organizations. This particular kind of social complexity has been well-theorized by Actor-Network Theory (commonly ANT), an ontology of the social which has its origins in work in science and technology studies.[15] ANT began with French theorist Bruno Latour's early attempts to locate the effect of the social on scientific knowledge production; it quickly expanded as a methodology for other contexts and concerns. While nearly as heterogeneous as its subjects, ANT has tended, across contexts, to call attention to the significance of relations to production, whatever that production may be of—strawberries, historic Portuguese trade networks, or dredge disposal facilities.[16] Moreover, ANT treats the actors embedded in these productive networks of relations flatly, "eroding distinctions in kind" by ignoring binary ontological distinctions between "human and nonhuman", "big and small", "social and technical", "nature and culture".[17] Heterogeneity across disparate actants is treated as a fundamental characteristic of productive networks and geo-spatial assemblages. DredgeFest approaches the anthropogenic manipulation of sediments in this social manner: always produced by heterogeneous assemblies of diverse agents.

The heterogeneity of these networks can be understood as having the effect of producing wicked problems. Wicked problems are "malignant", "vicious",

"tricky", and "aggressive"; unlike "tame" problems, wicked problems escape definitive formulation, are unique and specific to their individual circumstances, and are deeply embedded in feedback loops with other problems, such that "every wicked problem can be considered to be a symptom of another problem". They arise in circumstances where "contentious differences among subpublics" each having differing interests, value systems, and preferences lead to inabilities to clearly describe, formulate, or enact solutions that are perceived as being satisfactory to all engaged actors.[18] The systems that DredgeFest engages are replete with situations in which private industry, government regulators, and public citizenry all possess shifting aims and allied resources which variously coincide and conflict. Dredge landscapes are physical manifestations of these coincidences and conflicts.

Wicked problems can never be solved abstractly, since any answer must necessarily be developed through reference to the problem's specificities.[19] Thus to excavate the multitude of players engaged in dredge cycle activities, DredgeFest assembles an array of participants with pertinent agency, creating active, nodal manifestations of the regional dredge networks the actors are part of. As such, DredgeFest is a play upon a play.

Our intentions in creating these microcosms are far from passive. The event animates existing disciplinary and industry roles, but we also seek to alter them. As designers, we are focused on how design fields can develop agency within dredge landscapes otherwise dominated by industry actors. As described previously, we are not alone in this interest, but we have observed that, with dredge landscapes, a lack of working relationships and perceived common interests prevents designers from assuming real agency. In other words, the lack of relevancy of architecture to dredge is as much a social problem, a problem of social networks and the lack of shared experiences and encounters, as it is an expertise problem. Thus one of the primary goals of the Dredge Research Collaborative generally and DredgeFest specifically is to gather and instigate geographically-situated communities of common interest that incorporate designers, industry, and other interested parties, including scientists, activists, government agencies, and implicated publics.

Consequently, while much of the revelatory work of DredgeFest is directed toward interested publics and disciplinary audience, we intentionally design DredgeFest activities to interrogate and expand design fields' relational roles and approaches to industry, and vise versa. This is accomplished via a variety of methods. Symposium panels provide a shared platform for designers engaging landscapes of dredge and government agencies choreographing their management. Design workshops, regional mappings, and public tours introduce designers to local experts, and extend government agency public outreach efforts. Even the language that we use when we talk about dredge, such as examining geotubes as a "new soft architecture", situates dredging as a practice that can be understood as design, even when it is design without designers.[20] The next section of this paper expands upon these and other activities of DredgeFest in more detail.

ACTIVITIES

The first DredgeFest was a two-day event in New York City. It paired a half-day symposium and an accompanying exhibition of creative works and mappings (hosted at Columbia GSAPP's Studio-X NYC) with a boat tour of dredge landscapes in the New York/New Jersey Harbor, narrated by the DRC and representatives of implicated federal agencies.[21] DredgeFest NYC was the trial experiment

used to determine if we could engender an audience focused around sedimentary design and the Anthropocene. Based on the success and popularity of that event[22], a second, more extensive DredgeFest was held in Louisiana in January 2014.[23] It consisted of a full week of activity, including a two-day symposium, sited at Loyola University in New Orleans; four days of speculative design workshops, hosted by Louisiana State University's Robert Reich School of Landscape Architecture in Baton Rouge; and a guided public tour of dredge landscapes in and around New Orleans.

In preparation for each DredgeFest, the DRC conducts extensive background research on the selected region. Some of this geographic research takes the form of analytic and synthetic mappings articulating patterns and phenomena of the region's dredge cycle. From these mappings and other research, themes are identified that structure event content. In New York, for example, one of the key themes that emerged was the networked effects of the Panama Canal Expansion.

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Figure 1. Jamaica Bay: Anthrosols (per NYC Reconnaissance Soil Survey), Areas of Historic Filling, and Historic Outlines of Marsh Islands, The Dredge Research Collaborative

The Port of New York and New Jersey is years ahead of most other east coast ports in deepening its shipping channels to accommodate the Post-Panamax ships soon to call on its docks as a result of that expansion, which led us to investigate where all that surplus dredge material was going and to what effect.[24]

In contrast to NYC, research for DredgeFest Louisiana uncovered a different set of overriding sedimentary conditions and challenges, such as extreme land loss in the Mississippi River Delta exacerbated by infrastructural alteration, which has

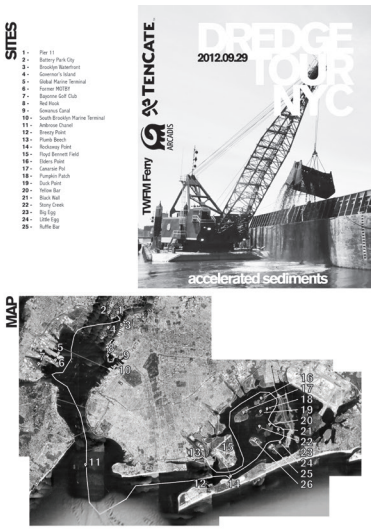

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Figure 2. DredgeFest NYC Harbor boat tour pamphlet, The Dredge Research Collaborative. Lisa Baron, Project Manager with the U.S. Army Corps of Engineers (NY District Harbor Programs Branch) and Dave Avrin, Chief of Resources at Gateway National Recreation Area for the National Parks Service, provided geographic and technical narration along the tour. Participants on the tour included industry professionals, such as dredge contractors, designers and photographers, as well as a wide public audience. Baron and Avrin remarked after the tour that the event provided them with a unique public outreach opportunity, as they had never seen such a diverse assembly of people interested in dredge landscapes.

chronically reduced sediment supply. For this event we experimented with adding four days of intensive design workshops to probe this sedimentary deficit. We invited six academic designers to help us craft and lead these design workshops, which were attended by university students, artists, and professionals from across North America.[25] Addressing the event's theme of land loss and sediment deprivation, workshops explored landform sculpting, deployment of robotic technologies to create diffuse and responsive sedimentary infrastructures, and a radical proposal and decision-making matrix for accessing and transporting sediment trapped upstream in dam reservoirs.

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Figure 3. DredgeFest NYC Symposium. Bill Murphy, Managing Scientist at e4sciences presenting subsurface geophysical imaging his corporate firm generated as a contractor for the Army Corps of Engineers' New York's Harbor Deepening Project.

LESSONS

We draw three provisional lessons about engagement with industry from our experiences thus far: an argument for transdisciplinarity, a complication of the concept of "private industry", and the need to interrogate the socio-political dimensions of engagement with industry.

First, DredgeFest suggests that engagement with industry will profit from a transdisciplinary approach, where the structure of engagement is not just bilateral between design and industry, but a multilateral space between disciplines which erodes the boundaries between them.[26] While we as organizers bring a disciplinary perspective to the event, we consciously structure DredgeFest to provide both formal and informal transdisciplinary encounters. As an example, we want US Army Corps of Engineers personnel to encounter a geologist who has estimated the total scale of human sedimentary manipulations in the context of a panel discussion with an architect considering alternative programs for dredged material management areas.[27] This multilateral space includes not only designers and industry, but also scientists, community activists, environmentalists, and the many other actors who have stakes in the design of the dredge cycle.

Second, in complex environments like the landscapes of dredge, private industry is deeply entangled with other, often public networks, to such an extent that they are often functionally co-extensive and constitute hybrid public-private entities which might be described as para-private industry. Here, the distinction between the public and private is far from clear. The USACE, which plays a key role in each dredge cycle instantiation that DredgeFest has studied, is a paramount example. This federal agency manages the complicated web of contracts and schedules that charter private industry to conduct dredging around the United States. In order to do this, USACE dredge personnel maintain close working relationships

with the private companies such as Great Lakes Dredge and Dock, Cashman Dredging, and Weeks Marine.[28]

Ports provide another example of the difficulty of parsing out industry as 'private'. For instance, the Port Authority of New York and New Jersey combines elements of public governance—its board is appointed by the governors of the states that formed it, New York and New Jersey—with an operational mandate that forces the Port to develop sufficient revenue streams to be "financially

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self-sustaining", like a publicly-regulated utility.[29] Furthermore, ports often lease out most of their actual port operations—the dockside transfer of containers and bulk cargo to and from ships—to private companies, just as the USACE contracts out the dredge operations that Congress mandates it perform. Consequently, ports, as physical infrastructures, are hybrid nodal entities composed of a legal patchwork of publicly-owned and privately-operated space.

The third provisional lesson that we draw from DredgeFest is that engaging industry is as much an operative social experiment as it is an intellectual project or problem of demonstrating expertise and value. The social boundaries between the actors implicated in para-private industry are more variegated and informal than their organizational and financial boundaries. DredgeFest events reveal the breadth of competing and allied agents implicated in the landscapes of the dredge cycle: dredging industry professionals and equipment operators, equipment manufacturers and materials suppliers; representatives of government agencies, such as the Environmental Protection Agency, the National Park Service, and the USACE; employees of environmental consultancies like AECOM, CH2MHill, and Parsons Brinckerhoff; community activists, like Public Lab, the Gulf Coast Restoration Network, and the Gowanus Canal Conservancy; environmentalists and conservationists, like Baykeeper in New York or the Audubon Society in Louisiana; scientists; artists; and para-private actors like ports; all play significant roles in the dredge cycle. While these actors may share overlapping interests—whether competitive or coinciding—they occupy distinct social networks.

For the DRC, developing new connections within these social networks is an ongoing and iterative process. Each crafting and doing of DredgeFest generates a wealth of experimental data. Afterward, we reflect upon what was learned and distill our findings in publications and exhibited visual works. We then embed a new iteration of experiments and propositions into the next event. Everyone present at DredgeFest is a participant in these experiments; there are no outside observers: not journalists, not speakers or panelist, not workshop leaders, and especially not the DRC.

Figure 4. DredgeFest Louisiana symposium Choreographing Sediments panel discussion. Moderated by Brett Milligan and Rob Holmes of the DRC, the session asked, "What plans currently exist for directing the future of sediments in the Mississippi River Delta? Who is making and implementing these plans? What do the processes of implementation look like? How is this necessarily interdisciplinary work coordinated?"

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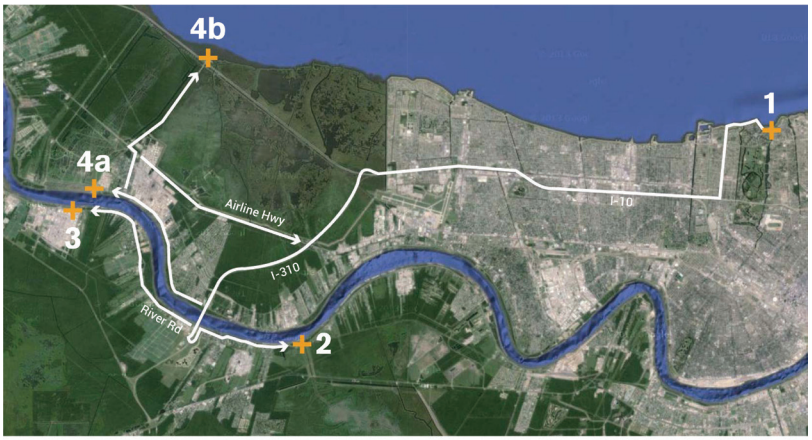

Bayou St John Restoration 1
Davis Pond Hydrological Diversion 2
3 Holy Rosary Cemetery
4 Bonnet Carré Spillway

Figure 5. DredgeFest Louisiana Public Tour. Top Image: map of tour itinerary; Bottom images: Bayou St John New Orleans, wetland restoration and public monitoring.Scott Eustis of the Gulf Coast Public lab (left) demonstrating kite mapping and low-fi aerial photography techniques as part of the DredgeFest Louisiana public tour; bottom: wetland restoration of Bayou St John using dredge material. The project was largely created by public volunteers.

This social experimentation is also explicitly publicly-oriented through a focus on the implications of public participation in dredge landscapes, which have historically excluded the public in addition to design disciplines. Panels at both DredgeFest NYC ("Regeneration and Public Participation") and DredgeFest Louisiana ("Instruments of Public Participation") gave voice to citizen scientists, D.I.Y. sedimentary practices and community-scale governance, and environmental advocates.

Here, the "Take Part" workshops organized by Lawrence and Anna Halprin in the 1960s provide an instructive comparison. Like DredgeFest, these workshops were social experiments structured and organized by designers (the multidisciplinary firm Lawrence Halprin and Associates). Like the emphasis on public participation within DredgeFest, the Halprin workshops emerged from a context of the exclusion of public agency in favor of technocratic expertise; in the case of "Take Part", that exclusion was the "institutionalized racism physically manifested by discriminatory redevelopment policies" that led "urban renewal programs [to become] increasingly suspect". [30] Alison Hirsch's recent history of the Halprins notes:

> "Scores for the Take Part workshop activities offered "temporal-situational guidelines" for a series of cumulative experiences that were deliberately

ENDNOTES

1 Throughout this paper, we use "architecture" as shorthand for the broad set of design practices historically and methodologically related to "building architecture", including landscape architecture.

2 The current members of the Dredge Research Collaborative are (in alphabetical order) Stephen Becker, Brian Davis, Rob Holmes, Tim Maly, Brett Milligan, and Gena Wirth.

3 See the DRC's article "Dredge" in *Bracket [goes Soft]* (eds. Neeraj Bhatia and Lola Sheppard), which merges design fiction with reporting on extant sedimentary manipulations.

4 Examples of work that shows increasing architectural interest in sediments as a topic of both research and design include Aershop's "Dredge Economies" (2012), Vandergoot Ezban Studio's "Exhuming the Rust Belt" (2011), Charlie Hailey's *Spoil Island* (2013), SCAPE's "Living Breakwaters" entry to the Rebuild by Design competition (2014), and the North Coast Design Competition, organized by Sean Burkholder (2014).

5 Bowker, Geoffrey C., and Susan Leigh Star. "Building information infrastructures for social worlds—The role of classifications and standards." In *Community Computing and Support Systems* (Springer Berlin Heidelberg, 1998): 231-248.

6 Graham, Stephen, and Simon Marvin. *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (Psychology Press, 2001): 180-183.

7 The term "infrastructural literacy" is drawn from Shannon Mattern's 2013 article "Infrastructural Tourism", published by *Places Journal*.

8 Rob Holmes and Brett Milligan, "Feedback: Designing the Dredge Cycle", *Scenario Journal*, Spring 2013, http://scenariojournal.com/article/feedback-designing-the-dredge-cycle/.

organized in a sequential and progressive manner to build up a mutual foundation for the diversity of participants. Because participants were chosen as a representative cross-section of a community, many did not share a common background. Therefore, the activities scored for the two- to three-day workshop were intended to foster a shared experience from which a group could develop a "common language of environmental awareness" and move forward in a collective way."[31]

The most significant impacts of DredgeFest may be the connections and commonalities forged by the diverse set of actors enrolled in these events. Yet significant geopolitical questions remain to be further explored in reference to the disciplinary production of dredge landscapes. Contemporary scholarship in infrastructural studies and urban political ecology overtly questions who produces what kinds of socio-technical and ecological spaces for whom, which as described above, is an implicit discussion in all DredgeFest events.[32] Like the Take Part workshops, DredgeFest investigates these questions in an embodied, performative manner, wherein the actors are thrust into novel encounters (as manufactured by us[33]) to enact, improvise and potentially reinterpret their roles in relationship to others. Dredgefest engenders social situations that would otherwise likely not occur, largely to see what might happen. But how else might extant socio-political and disciplinary hierarchies be explored?

On the final day of the DredgeFest Louisiana design workshops, workshop participants were asked to present their design strategies to a group of regional stakeholders. These stakeholders were actually students from LSU's School of Landscape Architecture, who were provided with a brief describing what stakeholder they were to assume the role of to review the projects, such as a corporation, a state agency, or an environmental advocacy group.[34] This pedagogical exercise served to highlight situated disciplinary and institutional biases among networks of actors; another social play on a play. We are currently exploring how received social roles and hierarchies might be more overtly examined within other DredgFest activities.

FUTURE PLANS

DredgeFest is currently structured by what we provisionally refer to as the Four Coasts project. Building on the notion of landing the dredge cycle in specific geographic contexts, Four Coasts approaches the geography of dredge through the lense of regional difference, defined by the four coasts of the continental United States: Atlantic (DredgeFest NYC), Gulf (DredgeFest Louisiana), Great Lakes (DredgeFest Great Lakes), and Pacific (DredgeFest California). Each of these coasts are served by different components of the dredge industry and face distinct environmental challenges, yet they also share common themes which run through our project.

For each DredgeFest we aim to take what we have learned in previous events, and try new experiments that build on that knowledge. The next DredgeFest, to be held on the Great Lakes in August 2015, consequently seeks to apply the lessons distilled from our experiences in New York and Louisiana.

The DredgeFest Great Lakes workshops will be constructed in a transdisciplinary fashion, drawing non-design disciplines, including science and industry, into the activities of the workshops, both as participants and leaders. The para-academic structure of the DRC allows it to steer clear of formal academia's bureaucratic structures, orchestrating clusters of leaders and participants around critical themes.[35] This transdisciplinarity will enable us to directly engage components

9 The term "restoration sedimentology" originates with an article so-titled in *Nature Geoscience* 5:11 by geomorphologist Douglas Edmonds.

10 Roger Hooke, "On the Efficacy of Humans as Geomorphic Agents," *GSA Today* 4 (1994): 217, 224–225.

11 Roger Hooke, "On the History of Humans as Geomorphic Agents," *Geology* 28:9 (2000): 843–846.

12 C.N. Waters, J.A. Zalasiewicz, M. Williams, M.A. Ellis and A.M. Snelling, eds. *A Stratigraphical Basis for the Anthropocene* (London: Geological Society of London, 2014).

13 See, for instance, the work of Erle Ellis and collaborators at the Laboratory for Anthropogenic Landscape Ecology; the edited collection *Making the Geologic Now* (Punctum Books, 2012); "The Anthropocene Project" run by the Haus der Kulturen der Welt; and *Architecture in the Anthropocene: Encounters Among Design, Deep Time, Science and Philosophy*, edited by Etienne Turpin (Open Humanities Press, 2013).

14 Steffen, Will, Paul J. Crutzen, and John R. McNeill. "The Anthropocene: are humans now overwhelming the great forces of nature?" *Ambio: A Journal of the Human Environment* 36, no. 8 (2007): 617-618.

15 Latour's *Science in Action* (1978) is generally taken as the starting point for ANT; significant early work in ANT was undertaken by other collaborators of Latour, including Michel Callon (who coined the term) and John Law.

16 Law, John. "Actor network theory and material semiotics." *The New Blackwell Companion to Social Theory* (2009): 146.

17 Law 147.

18 Rittel, Horst WJ, and Melvin M. Webber. "Dilemmas in a general theory of planning." *Policy sciences* 4, no. 2 (1973): 155-169.

19 Rittel and Webber's seventh characteristic: "every wicked problem is unique".

20 Stephen Becker, Rob Holmes, Tim Maly, and Brett Milligan, "Packaging Sludge and Silt," in *Making the Geologic Now,* eds. Jamie Kruse and Elizabeth Ellsworth (New York: Punctum Books, 2012).

21 A full description and video archive of the event, including the symposium structure and participants, can be found at http://dredgeresearchcollaborative.org/works/dredgefest-nyc/.

22 DredgeFest NYC was covered in media including *Urban Omnibus, Wired Design, The Atlantic Cities,* and *Landscape Architecture Magazine*.

23 A full description (and forthcoming video archive) for the event can be found at http://http://dredgeresearchcollaborative.org/works/dredge-fest-louisiana/.

24 Holmes and Milligan, "Feedback".

25 Workshop leaders were selected based upon the distinctive design research methodologies they could bring to bear on these issues. The leaders for DredgeFest Louisiana (listed by current institutional affiliation as of this writing) were Bradley Cantrell (Harvard), Justine Holzman (Louisiana State University), Alexander Robinson (University of Southern California), Richard Hindle (University of California, Berkeley), Casey Lance Brown (P-REX), and Jeff Carney (Louisiana State University).

26 Here, we reference Jean Piaget's original coinage of the term transdisciplinary: "Finally, we hope to see succeeding to the stage of interdisciplinary relations a superior stage, which should be "transdisciplinary", i.e. which will not be limited to recognize the interactions and or reciprocities between the specialized researches, but which will locate these links inside

a total system without stable boundaries between the disciplines." This is from his 1972 presentation "L'épistémologie des relations interdisciplinaires" at the Centre pour la Recherche et l'Innovation dans l'Enseignement, Organisation de Coopération et de développement économique in Paris.

27 This encounter occurred in the opening panel session, Dredge and the Anthropocene, at DredgeFest NYC. Video of this session is available at http://dredgeresearchcollaborative.org/works/dredgefest-nyc/.

28 These relationships are cataloged by "Dredging Contracts Abstracts", which are compiled each year and posted publicly at the USACE's Navigation Data Center (http://www.navigation-datacenter.us/dredge/dredge.htm).

29 "Financial Information", Port Authority of New York and New Jersey, accessed 17 September 2014, http://www.panynj.gov/corporate-information/financial-information.html.

30 Alison Bick Hirsch, *City Choreographer: Lawrence Halprin in Urban Renewal America* (Minneapolis: University of Minnesota Press, 2014), 185.

31 Hirsch, *City Choreographer*, 22.

32 Examples of this scholarship include the edited volume *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism* (Routledge, 2006) and *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (Psychology Press, 2001).

33 As Hirsch's research on the Take Part workshop's discusses, preferential biases (social, political, philosophical) abounded in the workshops, some of which were overtly acknowledged by the design team and some of which were less so, or even covert. In writing this essay, we are attempting to unpack and assess our own social biases as event orchestrators.

34 This event was designed for LSU's annual school-wide design week. The full list of imagined stakeholders included the Audubon Society, the US Army Corps of Engineers, the South LaFourche Levee District, BP Oil, and Louisiana's Coastal Protection and Restoration Authority.

35 Dan Hill, "Sketchbook: Fabrica 2013 Informal Annual Review: From departments to studios", *City of Sound*, October 2013, http://www.cityofsound.com/blog/2013/10/departments-to-studios.html.

36 Great Lakes Dredging Team: Membership http://greatlakes-dredging.net/membership/

of the speculative design process which were bracketed in the Louisiana workshops—and typically bracketed in architectural design processes, generally.

Recognizing the importance of para-industrial actors within the the dredge cycle, we are working to build awareness of the value of DredgeFest not only within the dredging industry of the Great Lakes region, but also this broader para-industrial envelope, including both national actors that we have developed relationships with (like the USACE and the EPA) and regional or local actors who are specific to the geography of the Great Lakes, such as the Great Lakes Dredging Team, an inter-agency federal and state partnership consisting of a multitude of entities.[36] These actors have a variety of relationships to the engineering and construction of dredge landscapes in the Great Lakes, including governance, oversight, lobbying, and sponsorship.

Finally, as a result of our belief that DredgeFest gains much of its value from its operation as a social experiment that builds new linkages between diverse actors, we are aiming to generate more opportunities for informal contact between the communities that attend DredgeFest Great Lakes. For instance, we are deconstructing the symposium structure—which, thus far, has been quite conventional in format even while it is unconventional in content and composition—in a way that integrates activities aimed explicitly at generating social exchange.

CONCLUSIONS

Ultimately, the intention of the Dredge Research Collaborative is to examine what roles architects might play in the design of sedimentary processes and dredge landscapes. The scale at which global sedimentary regimens are designed and humanly altered is bewildering. Yet we, as a set of allied disciplines (both academics and practitioners), have thus far been sidelined from these applications and industries. Here, we've discussed how DredgeFest has inserted itself into these sedimentary industries. The first two events have revealed lessons that we believe have broad relevance to efforts to engage industry from within the academy; not the least of these is that these efforts can, when pursued intelligently, be tremendously generative, opening up new territories for the design fields. We expect to learn at least as much from the next two.