



ORBACLES

MINN_LAB DESIGN COLLECTIVE
MINNEAPOLIS, MN
2017

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ORBACLES

PROJECT OVERVIEW

Orbacles is a triad of spherical environments that connect visitors to the reality of climate change through the story of birds in Minnesota and the language of our senses. As both a record and a speculation about the future through the end of the century, Orbacles communicates the current and anticipated shift of birds due to species loss and migration related to climate effects.

Orbacles is a physical visualization of the data scientists use to understand climate change. Each of the 147 bird species found in Minnesota in the Climate Change Bird Atlas is represented as a module – an individual birdhouse, feeder, or bath – with a hood that is sized to be proportional to the typical length and wingspan of the species. The placement is consistent, so one finds the module for each species at a consistent location within each Orbacle.

By 2100 the world will have changed in ways that are hard to imagine. Scientists often compare multiple alternatives, since the future depends in part on the choices we make today. The future scenarios represented in Orbacles come from the Special Report on Emissions Scenarios, developed by the Intergovernmental Panel on Climate Change.

Over half of Minnesota’s birds are threatened by climate change. Orbacles attempts to visualize and make legible this threat. Orbacle A|Shelter represents a baseline for comparison, with one shelter for each of the 147 bird species prevalent in Minnesota today. Offering two possible futures, Orbacle B|Feeder showcases a low emissions scenario and Orbacle C|Bath showcases a high emissions scenario. To “read” the data and compare the different scenarios, look for changes in color compared to Orbacle A. Blue means the species become more prevalent in the future; Orange means that the species are expected to become less prevalent in the future.

The installation expands the field of methods used to communicate this scientific information and the public urgency around climate change. Rather than narrowing understanding to singular topics, Orbacles intends to spur recognition, contemplation, questioning, conversation, and response to the dynamic atmospheres already present in the site and throughout Minnesota.

ORB - a spherical body; a globe

ORACLE - a medium through whom advice or prophecy is sought

ORB + ORACLE = ORBACLE



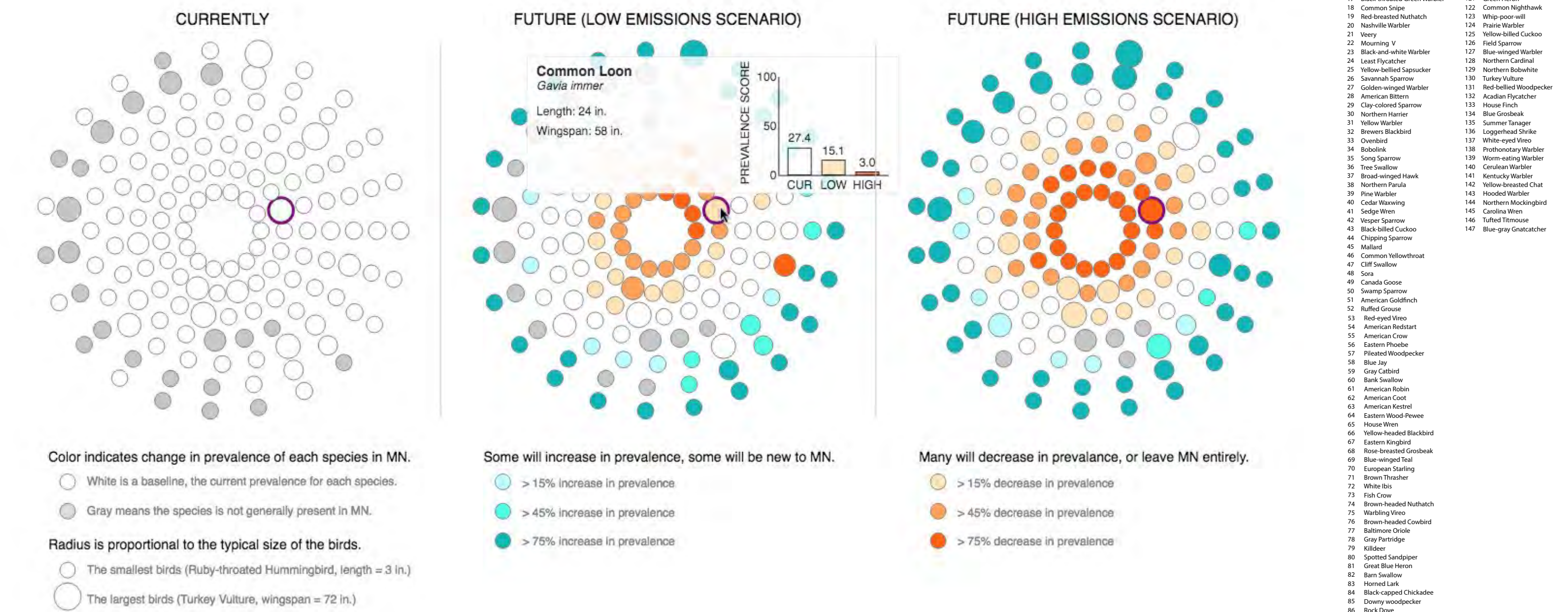
COMPETITION CALL

In 2017, the Creative City Challenge held a competition to create an installation exploring the effects of climate change on Minneapolis and its residents.

Sometimes the enormity of climate change seems overwhelming. Facts are necessary to understand how and why climate change is happening, but it is culture that changes people’s behavior in the world. Artists are the makers and the storytellers and the questioners who build this culture and can help us understand the consequences of climate change, and, ultimately, challenge us to act on this understanding. We are particularly interested in proposals that use the space of The Commons to encourage action, both individually and as a community.

MAKING CLIMATE DATA REAL, PHYSICAL

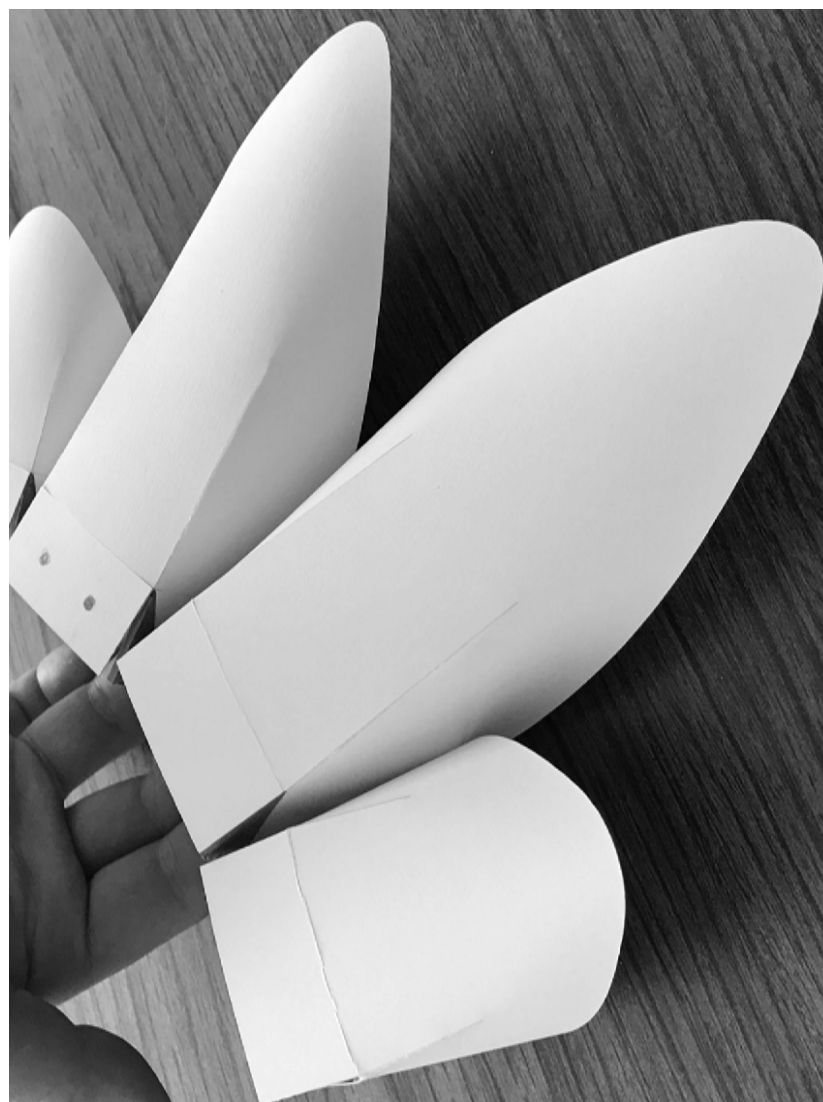
The Orbacles data mappings for size, color, and spatial arrangement are described for visitors in the didactics that accompany the piece. The data physicalization is also mirrored in an interactively explorable online visualization. Here, the Common Loon is highlighted. The loon is the state bird of Minnesota and one of the 147 species represented in the data. <http://minnlab.squarespace.com/orbacles>



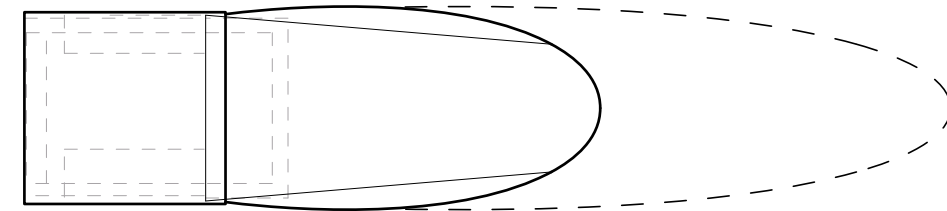
bird list		
1	Swainsons Thrush	105 Eastern Meadowlark
2	Lincolns Sparrow	106 Wood Thrush
3	Evening Grosbeak	107 Great Egret
4	Dark-eyed Junco	108 Snowy Egret
5	Magnolia Warbler	109 Little Blue Heron
6	Blackburnian Warbler	110 Cattle Egret
7	Hermit Thrush	111 Yellow-crowned Night-Heron
8	Canada Warbler	112 Common Ground-Dove
9	Black-throated Blue Warbler	113 Black Vulture
10	Winter Wren	114 Mississippi Kite
11	Northern Waterthrush	115 Chuck-Wills Widow
12	Yellow-rumped Warbler	116 Scissor-tailed Flycatcher
13	White-throated Sparrow	117 Bachmans Sparrow
14	Blue-headed Vireo	118 Painted Bunting
15	Purple Finch	119 Yellow-throated Warbler
16	Common Loon	120 Orchard Oriole
17	Black-throated Green Warbler	121 Green Heron
18	Common Snipe	122 Common Nighthawk
19	Red-breasted Nuthatch	123 Whip-poor-will
20	Nashville Warbler	124 Prairie Warbler
21	Veery	125 Yellow-billed Cuckoo
22	Mourning V	126 Field Sparrow
23	Black-and-white Warbler	127 Blue-winged Warbler
24	Least Flycatcher	128 Northern Cardinal
25	Yellow-bellied Sapsucker	129 Northern Bobwhite
26	Savannah Sparrow	130 Turkey Vulture
27	Golden-winged Warbler	131 Red-bellied Woodpecker
28	American Bittern	132 Acadian Flycatcher
29	Clay-colored Sparrow	133 House Finch
30	Northern Harrier	134 Blue Grosbeak
31	Yellow Warbler	135 Summer Tanager
32	Brewers Blackbird	136 Loggerhead Shrike
33	Ovenbird	137 White-eyed Vireo
34	Bobolink	138 Prothonotary Warbler
35	Song Sparrow	139 Worm-eating Warbler
36	Tree Swallow	140 Cerulean Warbler
37	Broad-winged Hawk	141 Kentucky Warbler
38	Northern Parula	142 Yellow-breasted Chat
39	Pine Warbler	143 Hooded Warbler
40	Cedar Waxwing	144 Northern Mockingbird
41	Sedge Wren	145 Carolina Wren
42	Vesper Sparrow	146 Tufted Titmouse
43	Black-billed Cuckoo	147 Blue-gray Gnatcatcher
44	Chipping Sparrow	
45	Mallard	
46	Common Yellowthroat	
47	Cliff Swallow	
48	Sora	
49	Canada Goose	
50	Swamp Sparrow	
51	American Goldfinch	
52	Ruffed Grouse	
53	Red-eyed Vireo	
54	American Redstart	
55	American Crow	
56	Eastern Phoebe	
57	Pileated Woodpecker	
58	Blue Jay	
59	Gray Catbird	
60	Bank Swallow	
61	American Robin	
62	American Coot	
63	American Kestrel	
64	Eastern Wood-Pewee	
65	House Wren	
66	Yellow-headed Blackbird	
67	Eastern Kingbird	
68	Rose-breasted Grosbeak	
69	Blue-winged Teal	
70	European Starling	
71	Brown Thrasher	
72	White Ibis	
73	Fish Crow	
74	Brown-headed Nuthatch	
75	Warbling Vireo	
76	Brown-headed Cowbird	
77	Baltimore Oriole	
78	Gray Partridge	
79	Killdeer	
80	Spotted Sandpiper	
81	Great Blue Heron	
82	Barn Swallow	
83	Horned Lark	
84	Black-capped Chickadee	
85	Downy woodpecker	
86	Rock Dove	
87	Mourning Dove	
88	Purple Martin	
89	House Sparrow	
90	Grasshopper Sparrow	
91	Yellow-throated Vireo	
92	Ruby-throated Hummingbird	
93	Red-tailed Hawk	
94	Indigo Bunting	
95	White-breasted Nuthatch	
96	Red-headed Woodpecker	
97	Brown Creeper	
98	Great Horned Owl	
99	Ring-necked Pheasant	
100	Eastern Towhee	
101	Red-shouldered Hawk	
102	Chimney Swift	
103	Willow Flycatcher	
104	Dickcissel	

“By 2080, the Common Loon will be spending its summers in Canada, its haunting call but an echo in the memories of Minnesotans.”

- Audubon Birds and Climate Change Report



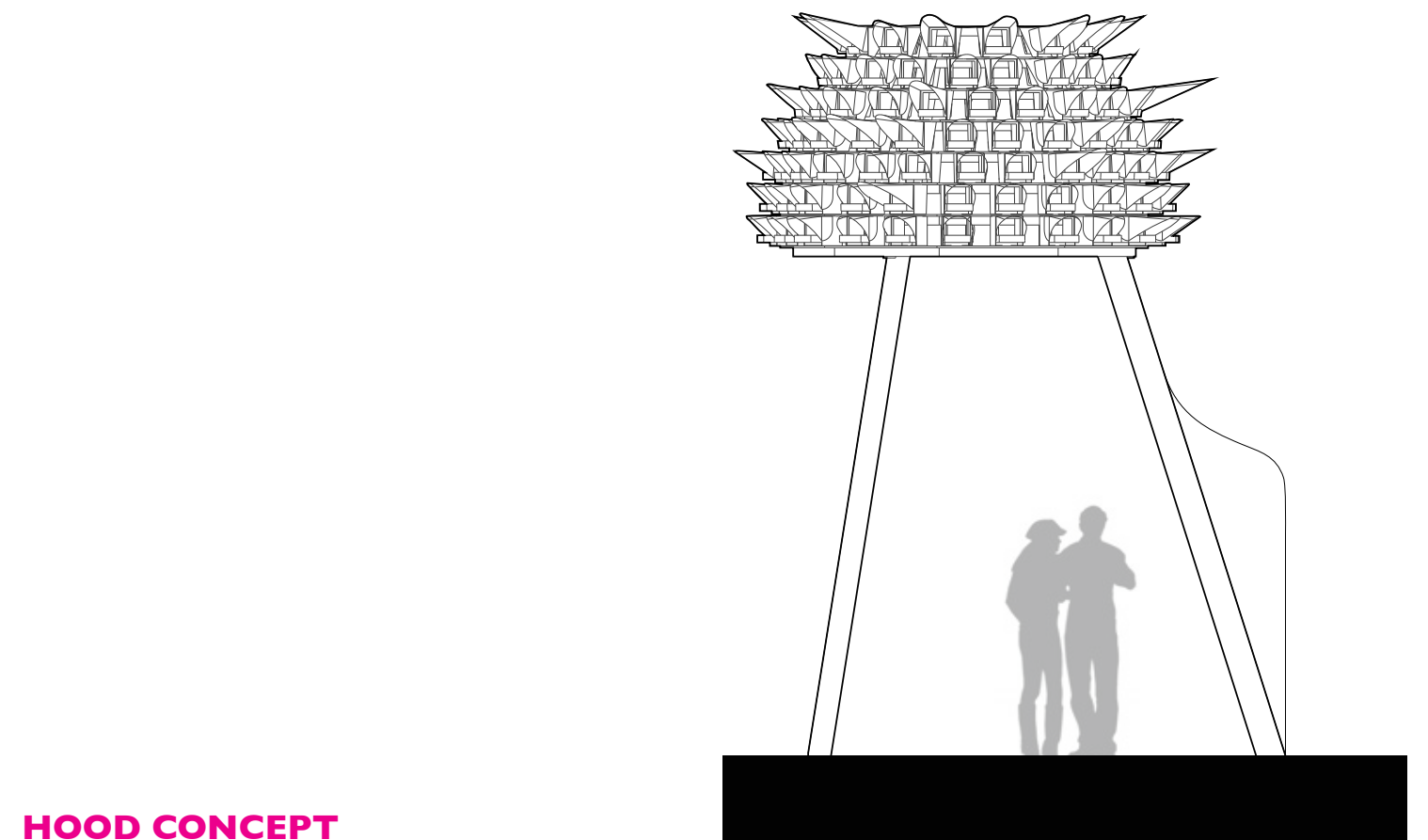
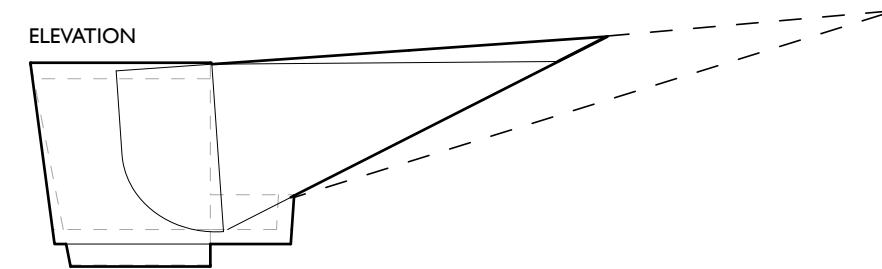
PLAN



HOOD LENGTH CORRESPONDS TO AVERAGE SIZE OF BIRD SPECIES

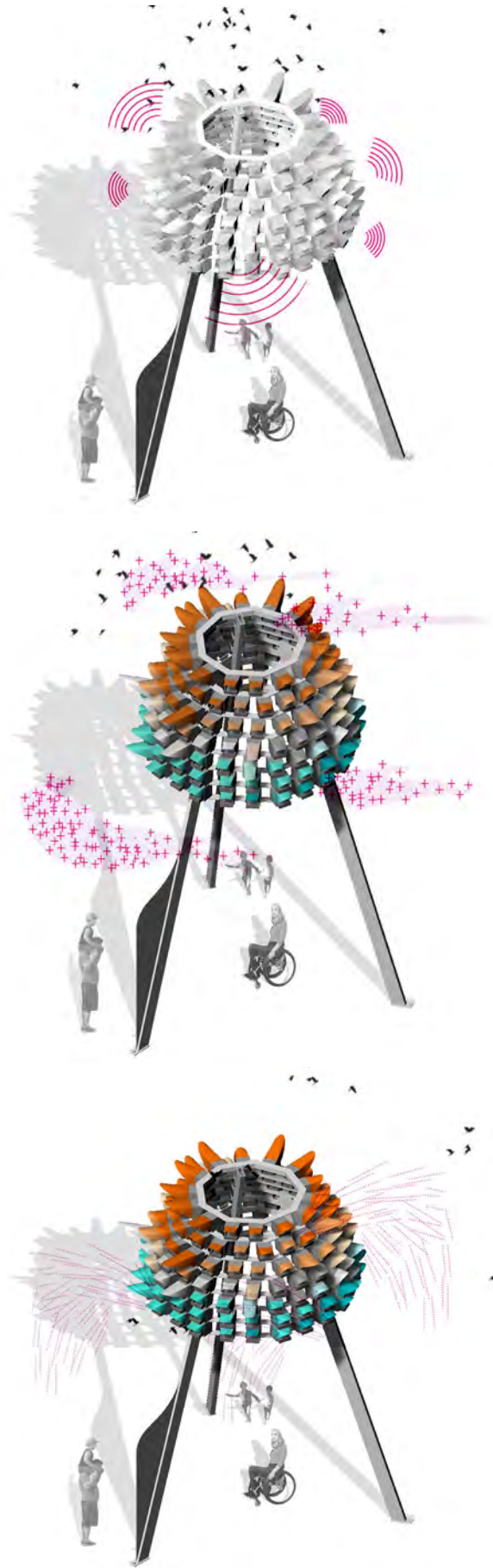


ELEVATION



HOOD CONCEPT

THREE EXPERIENCES - PRESENT & TWO FUTURES



ORBACLE A / BIRD HOUSE
PRESENT (2017) BIRD POPULATION

HOUSE - SOUND
The bird houses are filled with nesting materials, and activated with bird sounds, coming from speakers hidden in the modules, powered by solar panels.

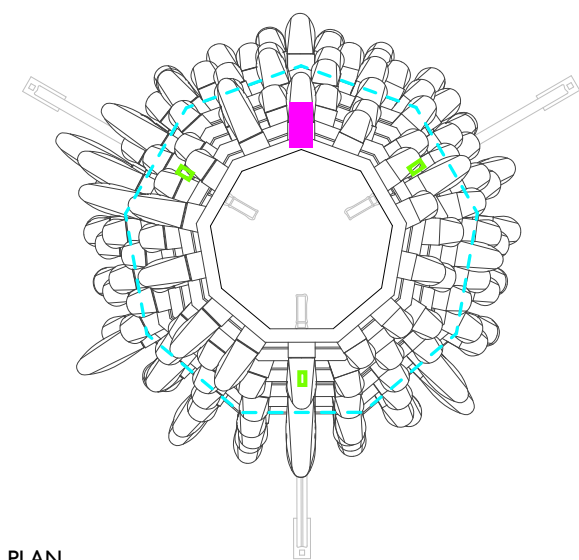
ORBACLE B / BIRD FOOD
FUTURE (2100) LOW EMISSIONS

FOOD - SCENT
The bird feeders are filled with varieties of Minnesota seeds and grains, and activated with passive fragrance from diffusers.

ORBACLE C / BIRD BATH
FUTURE (2100) HIGH EMISSIONS

BATH - WATER
The bird baths are filled with water, activated by overflow that drips down the modules to the ground below. Misters cool the air for birds and visitors below.

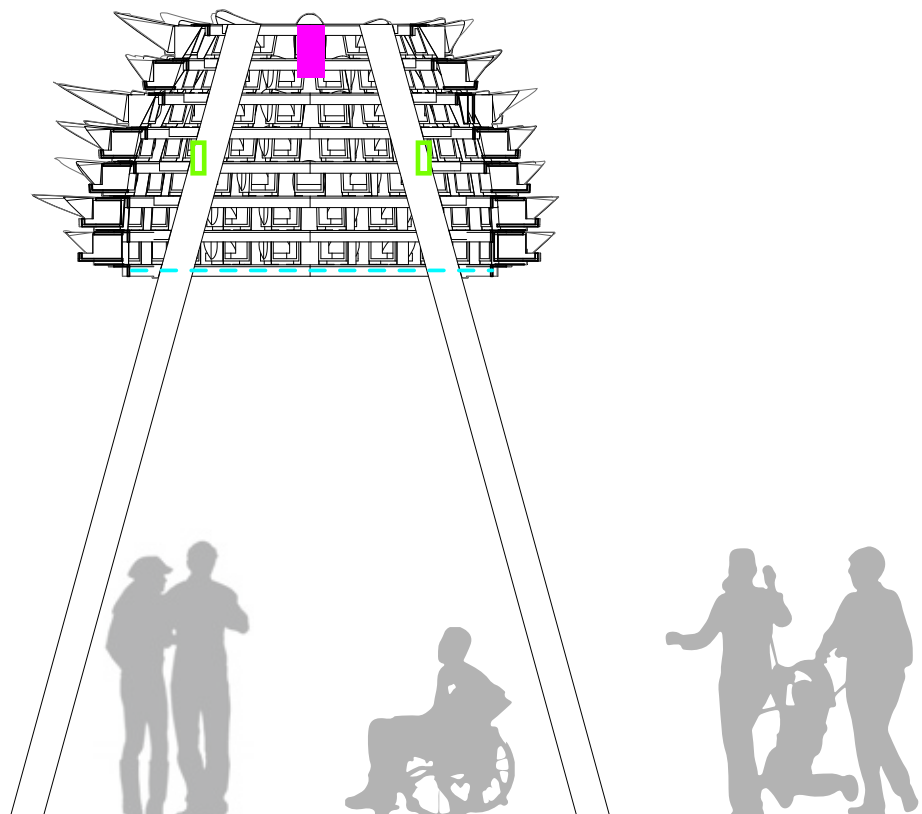
SENSORY EXPERIENCE



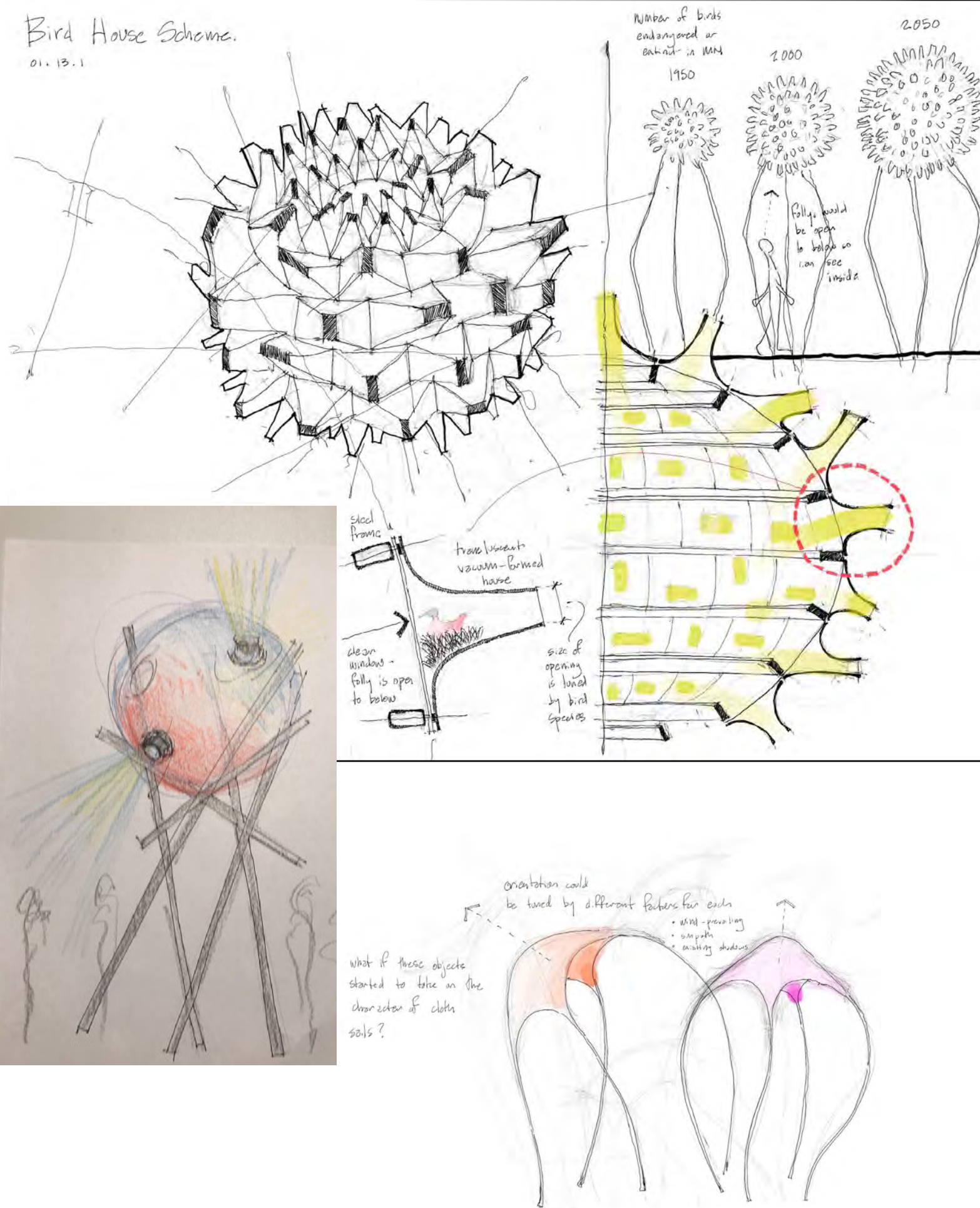
ORBACLE A
SOUND

ORBACLE B
SCENT

ORBACLE C
WATER



SECTION



CONCEPT SKETCHES / FABRICATION

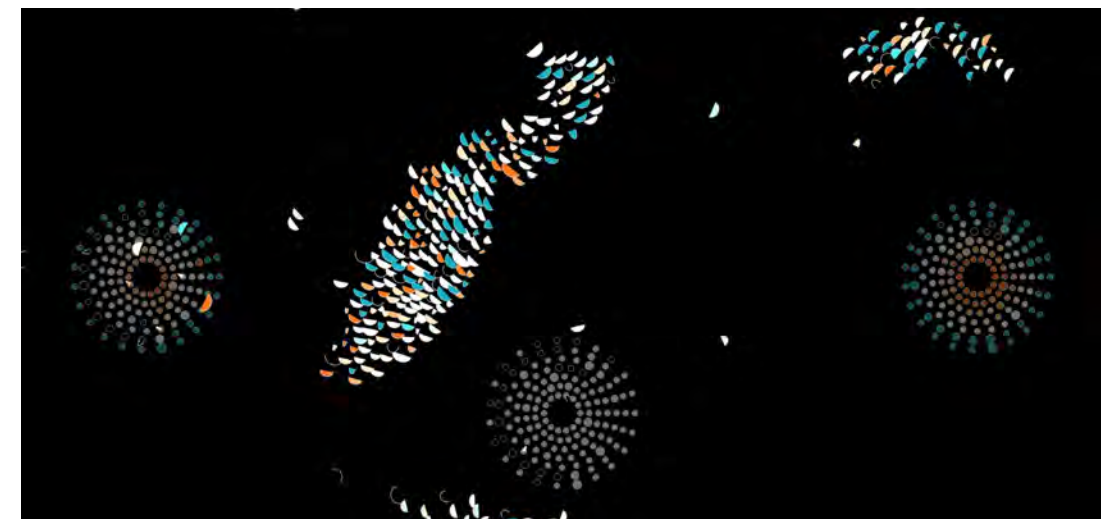
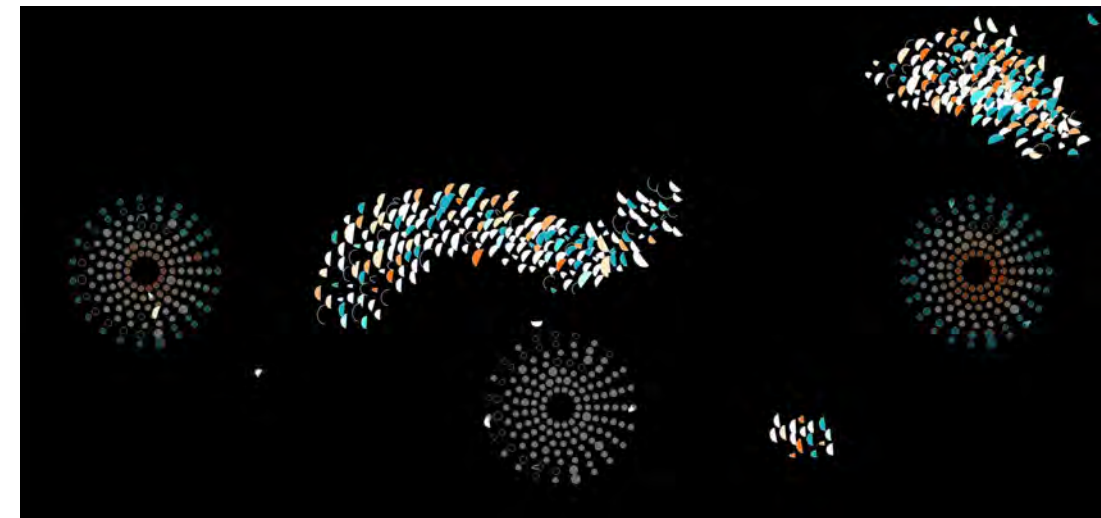
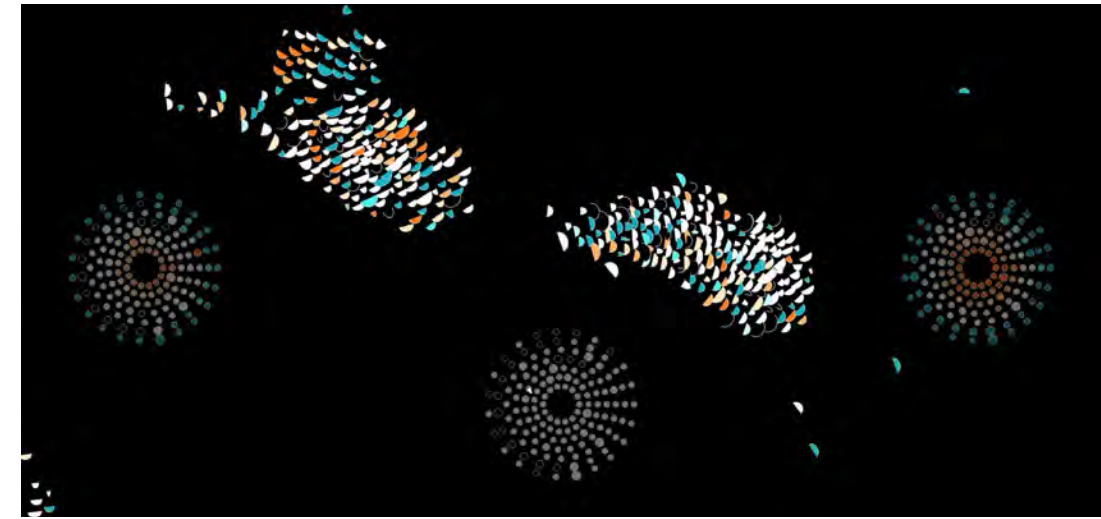


OPENING NIGHT

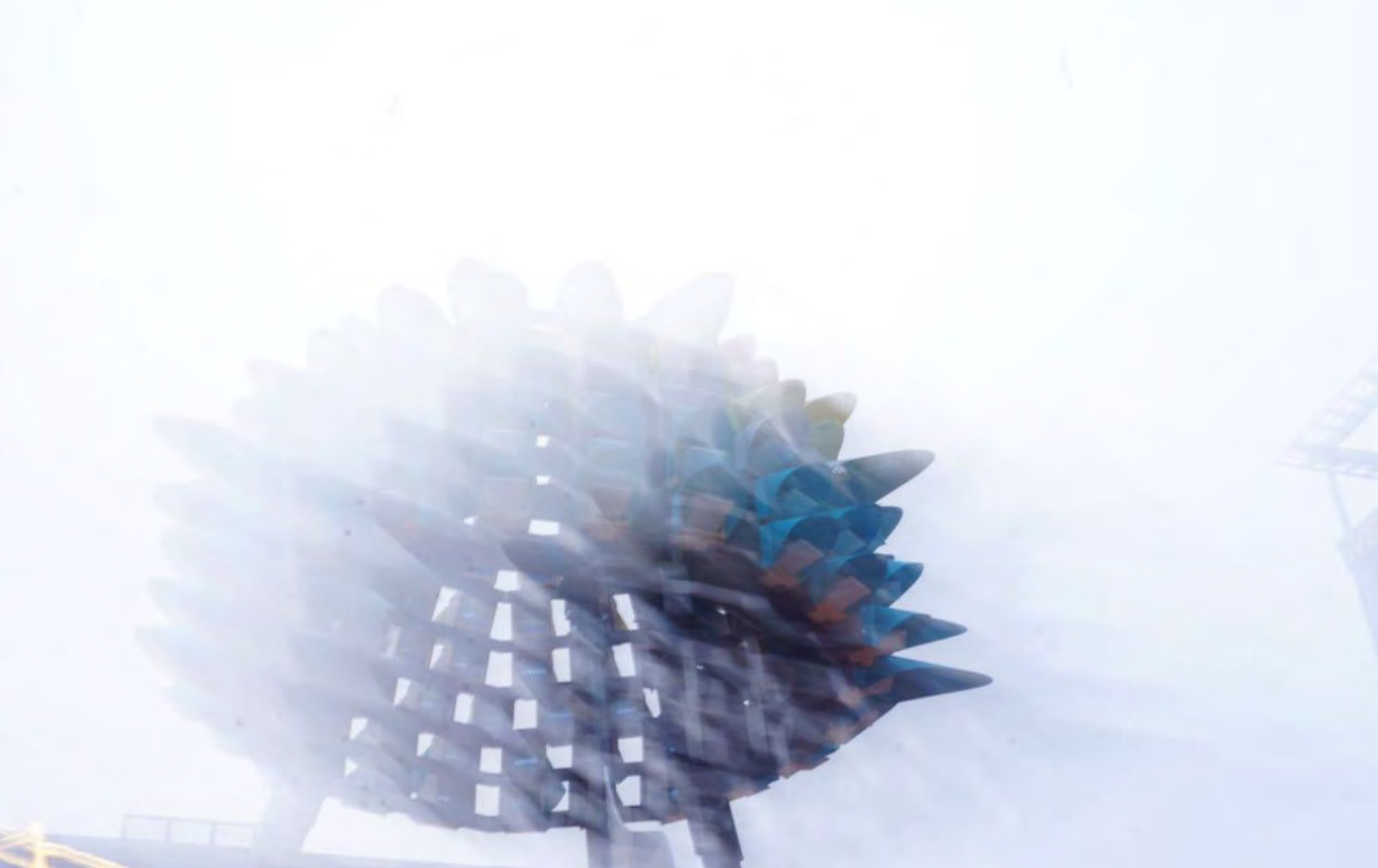


“FLOCKS” EVENT

The opening night was scheduled to coincide with the Northern Spark dusk-until-dawn arts festival. For this special night the Orbacles were animated by a custom-programmed flocking simulation and projection. The installation used two projectors to digitally map and project on the ground under the three orbs. As visitors mingled in the park, birds (one corresponding to each species) swooped out of their nesting sites to join a flock. The flocks were in constant motion throughout the night, often projecting onto people, bicycles, balloons, and whatever else passed through the park.



FLOCK ANIMATION SEQUENCE



COME PAINT YOUR OWN BIRD HOUSE, BATH OR FEEDER!

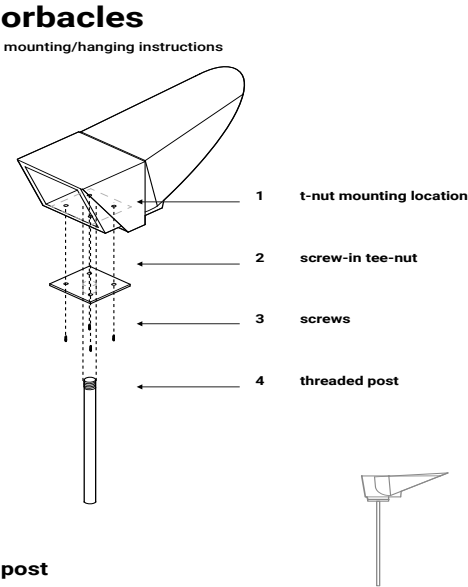
first come, first serve! kids welcome!

Saturday, December 2, 10-12pm
Ralph Rapson Hall Courtyard
89 Church St SE

MINN_LAB invites you to join us for the great
ORBACLE GIVE AWAY!
@minn_lab #minn_lab #minnlab #orbacles

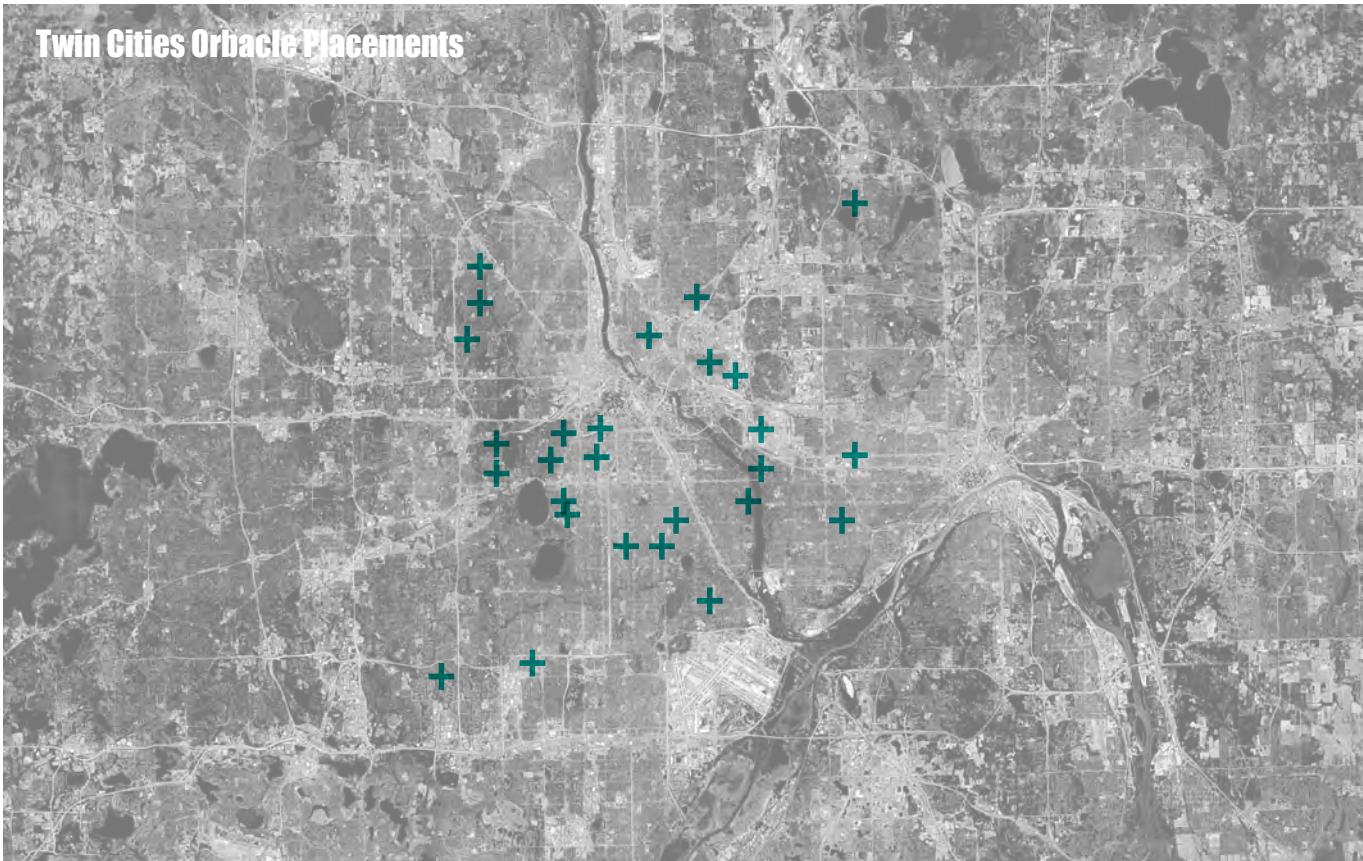


Designed by MINN-LAB, Orbacles was a triad of spherical environments installed on the Commons for 5 months as part of the Creative City Challenge 2017. The installation connected visitors to the reality of climate change through the story of birds in Minnesota and the language of our senses. The project created a physical visualization of the data scientists use to understand climate change. Each of the 147 bird species found in Minnesota in the Climate Change Bird Atlas was represented as a module – an individual birdhouse, feeder, or bath – with a hood that is sized to be proportional to the typical length and wingspan of the species.



THE AFTERLIFE

The Obacles modules are now creating bird habitats in backyards throughout the region..



DESIGN TEAM, PARTNERS, AND ACKNOWLEDGEMENTS

MINN_LAB is a design collective composed of architects, landscape architects, and computer scientists. We engage and facilitate cross disciplinary dialogue through the collective creation of site-based installations that foster awareness and critical inquiry into the nature of our cities, and imagine their possible futures.

The annual Creative City Challenge commission is made possible by the Arts, Culture and the Creative Economy program of the City of Minneapolis, hosted in collaboration with The Commons and Northern Lights.mn and the Northern Spark festival. Additional support was provided by the University of Minnesota Digital Design Center. This 2017 commission was based on the theme Climate Chaos, Climate Rising.

This project is made possible, in part, by the generous support of:

Arts, Culture and the Creative Economy, City of Minneapolis, <http://www.minneapolismn.gov/coordinator/arts/acce>

University of Minnesota Digital Design Center, <http://ddc.design.umn.edu>

MG McGrath, <https://mgmcgrath.com>

3M Design (signage materials sponsor), <http://www.3m.com>

Grain Millers, <http://www.grainmillers.com>

SCIENTIFIC DATA CREDITS AND REFERENCES

The data visualized come primarily from the Climate Change Bird Atlas (A Spatial Database of 147 Bird Species of the Eastern USA) [1,2]. Typical lengths and wingspans were retrieved from the Patuxent Bird Identification Infocenter [3].

1. Matthews, S.N., L. R. Iverson, A.M. Prasad, A. M., and M.P. Peters. 2007-ongoing. A Climate Change Atlas for 147 Bird Species of the Eastern United States [database]. <https://www.nrs.fs.fed.us/atlas/bird>, Northern Research Station, USDA Forest Service, Delaware, Ohio.
2. Matthews, S. N., Iverson, L. R., Prasad, A. M. and Peters, M. P. 2011. Changes in potential habitat of 147 North American breeding bird species in response to redistribution of trees and climate following predicted climate change. *Ecography*, 34: no. doi: 10.1111/j.1600-0587.2010.06803.x Published online: <http://onlinelibrary.wiley.com/doi/10.1111/j.1600-0587.2010.06803.x/full>
3. Gough, G.A., Sauer, J.R., Iliff, M. Patuxent Bird Identification Infocenter. 1998. Version 97.1. Patuxent Wildlife Research Center, Laurel, MD. <http://www.mbr-pwrc.usgs.gov/infocenter.html>

