

# Examples of Earth Systems Capstone Projects

## 2015-16

**Reade Levinson** (2015-16) created a podcast story on the threats of open-pit copper and gold mines in development in British Columbia to Alaskan salmon fisheries. Her podcast is archived [here](https://beta.prx.org/stories/179872) on PRX. Link: <https://beta.prx.org/stories/179872>

**\*Jonathan Fisk** (2015-16) explored how to make Stanford Dining's seafood options as sustainable as possible by ascertaining how to replace or re-source less sustainable options. Partnering with RD&E, he created a database of sustainable seafood purchasing options that rigorously factored in considerations related to target species population abundance and trophic level, the environmental impact of harvesting methods, and fisheries management and labor practices—as well other factors such as taste and consumer preference.

**Jacklyn Phi** (2015-16) wrote a research paper exploring two aspects of the palm oil supply chain in Indonesia. First, she investigated the benefits and losses to every major stakeholder and dimension in the supply chain, and analyzed the role of NGOs, consumers, corporations, palm oil workers, as well as at the ecological, social, health, and policy effects of palm oil production. Second, she investigated the factors that triggered companies to become more responsible in their sourcing of palm oil through case studies focusing on the palm oil sourcing practices of four companies—Nestlé, Kraft Foods, Dunkin' Donuts, and Starbucks.

**Tyler McIntosh** (2015-16) created a book focusing on portrayals of Chile's diverse landscapes in which he integrated remotely sensed images with his own photographs and poems.

## 2016-17

**Ashley Overbeek** (2016-17) created a sustainable product and launched a business. Acting as a chemist, she experimented with bath-bomb recipes, found one that she liked and she could manufacture at home. She traced and chose all ingredients to be sustainably sourced. She then created a business plan and designed product packaging and labeling that told the story of each ingredient. Peachy Bath Bombs was launched. She then created a website to tell the story of her product. Each bag of Peachy Bath-bombs had a QR code to direct the consumer to the product and company website.

**Lauren Gibson** (2016-17) wrote a conservation-themed children's book about the endangered Hispaniolan solenodon to encourage positive environmental attitudes in young people. The book, written in partnership with Dominican collaborators, and illustrated by Earth Systems alum Mattias Lanas, was translated into Spanish and delivered to conservation partners to be used as an educational tool. Lauren's capstone project built on her honors thesis studies of conservation of the Hispaniolan solenodon, which involved close collaboration with Dominican scientists, educators, and conservation organizations in an effort to answer scientific questions that are useful for on-the-ground conservation of this rare species.

**Fiona Noonan** (2016-17) developed a one-unit seminar on gender, land rights, and climate change, which she taught to 12 students in the spring quarter 2017. To develop the course, Fiona both consulted extensively with Earth Systems Writing Specialist, Dr. Emily Polk and built on her own studies of and work in international policy, women's land rights, agriculture, and climate change. Fiona envisioned the course as a way to bring her interests together and share her knowledge with other students. She was also motivated by her interest in testing out concepts she had learned through her coursework and research in environmental education.

**Darel Scott** (2016-17) created Earth in Color, an initiative that attempted to partner with Stanford Community Centers to create tailored sustainability plans that raise awareness about impacts of environmental challenges. While this initiative did not take flight, Earth in Color did. EIC is now an official 501C3. Darel produced a magazine, Radicle, that explores sustainability and the environment, centering black voices and perspectives, cultivating an active space for for cultural healing, learning and personal germination. She sponsors events, artists, poets, chefs, interviews, playlists, storytellers—a marvelous constellation encouraging all to “take root.”

## 2017-18

**Paloma Hernandez** (2017-18) wanted to support the efforts of Stanford's Environmental Justice Working Group, which was planning a new course for fall of 2018. Paloma researched all EJ courses already taught, expanding to more general justice courses as so little exists in the Environmental Justice space. She designed and conducted a survey with over 300 respondents. She was investigating preferences for the content of this new course, to be taught by Emily Polk and Sybil Driver. She analyzed what already existed, incorporated the results of her survey and prepared a report to guide the development of “Topics in Writing and Rhetoric Introduction to Environmental Justice: Race, Class, Gender and Place.”

**\*Zachary Birnholz** (2017-18) conducted a series of energy, water, and waste audits at Stanford's Hillel House and then orchestrated the retrofitting of faucets with low flow aerators to conserve water, installing power strips and recycling receptacles. With these improvements, the Hillel House was then included in the campus wide sustainability building rating system.

**Armando Rojas** (2017-18) created a photo essay “Wilderness and Wildfires of the Okanogan: A look into the wildfire history of the Okanogan-Wenatchee National Forest.” The essay examined the historical record of wildfires in an area Armando grew up in. He enhanced this study with his own photography from horseback and that of his family archives. He then incorporated Landsat 5 images to analyze the longitudinal record of forest cover and fire influences.

**Lia Ferguson** (2017-18) created a website that organized a full year of independent readings on environment and sustainable development. She obtained the domain name for this website, MyEarthLibrary.com. She conducted an intensive literature review, finding new materials and collecting others that she had been exposed to, but did not have the time to fully digest. She designed this website to be dynamic, encouraging others to add resources, comment on particular pieces.

**Sierra Garcia** (2017-18) wrote a [long-form feature article](#) published in Medium.com that follows the stories of several residents of Palo Colorado Canyon in Big Sur, whose lives were impacted by the 2016 Soberanes fire. The article tells the larger story of how communities in the American West are coping and adapting to natural disasters and climate threats.

**Courtney Pal** (2017-18) conducted a qualitative analysis of comments submitted during the Environmental Impact Report review of the 2014 Facebook Campus expansion project in Menlo Park, California. Her goal was to assess the historical context, present need, and future possibility of a state mandate to study the social impacts of all proposed development projects. (Courtney referred to this as a “social CEQA” analogous to the California Environmental Quality Act’s current mandate to study the environmental impacts of a proposed project.) She also interviewed three organizers—who worked to sign a community benefits agreement related to the Project—about how they believe the CEQA process could be improved. Courtney’s research revealed that informed, strategic organizations submit comments that are not relevant to CEQA because it is the only way to bring those concerns to light early in the development process, a finding corroborated by her interviews. As part of her capstone deliverable, Courtney wrote an op-ed advocating for the need for a social CEQA informed by her findings.

**Stephanie Fischer** (2017-18) curated an exhibit of environmental art as part of the Earth In Color celebration at O’Donohue Family Stanford Educational Farm in 2018. The artwork, as diverse as the 20 participating student artists, featured painting, poetry, music, photography, sculpture, and mixed media. Stephanie charged students to create artwork around the elemental themes of earth, fire, air, and water that reflected their connection to the natural world. She was motivated to undertake this project by her own experience of art as a powerful force of healing, and she desired to create an art exhibition that would celebrate the connection to the natural world that provides a source of resilience for so many.

**Nick Mascarello** (2017-18) created a [podcast](#) focusing on student-initiated bird research at Jasper Ridge Biological Preserve and bird life on the Stanford campus. In pursuing this project, Nick was motivated by his longstanding interests in environmental communication and biodiversity and conservation issues.

## 2018-19

**Sierra Killian** (2018-19) researched and wrote a white paper titled “Oil Spill Prevention From Shipping in US Arctic Waters: Current Policy Context and Paths Forward.” Sierra built upon research she had started as an intern at Stanford’s Center for Ocean Solutions. By devoting her capstone to this white paper, Sierra was able to delve much deeper into this arising challenge as Arctic sea ice melts and oil transshipments multiply. This policy analysis proved extremely valuable for the Center and helped Sierra obtain a position at the Environmental Law Institute in Washington, D.C.

**Ryder Kimball** (2018-19) created a [photo-essay on salt evaporation ponds](#) in the San Francisco Bay. He used a drone to capture aerial images of these human-made landscapes before they are all restored into tidal marshland to fortify the area’s coast against the consequences of climate change,

notably sea level rise. The project serves as an exploration and record of this fascinating part of the San Francisco Bay's history before it disappears.

**\*Jessa Clark** (2018-19) wanted to learn more about how California supports low-income access to rooftop solar panel systems, and the role that the non-profit [GRID Alternatives](#) plays in this system. She attended volunteer solar installations through GRID, during which she received hands-on experience installing solar panels and had meaningful conversations with various GRID employees and other volunteers about their backstories, GRID's mission, and low-income solar in general. Additionally, she engaged other stakeholders in and outside of GRID to learn more about the broader political, social, and economic system that supports renewable energy access for low-income homeowners and communities. Using all of this information, she constructed system, stakeholder, and impact maps of the low-income solar system in California, GRID Alternatives' impact, and the stakeholders she talked to using Kumu, an online system mapping platform.

**\*Scott Lucio and Talia Trepte** (2018-19) wanted to create a video based project on water resources that tied back to indigenous communities. Talia, remembering her interactions with Native Hawaiian activist, Ruth Aloua, and wanting to complete a project related to her culture, teamed up with classmate, Scott, to create a mini documentary in Kona. After applying for and receiving a Stanford Wood's Institute Mel Lane grant, they worked with Ruth to create a documentary focusing on local community efforts to restore the Kaloko-Honokohau fishpond on the island of Hawai'i.

**\*Daela Taeli'i-Tipton** (2018-19) sought a community-based capstone project that focused on the local impacts of climate change while highlighting issues of environmental justice. She partnered with Acterra, a Palo Alto based environmental nonprofit with a focus on equitable, sustainability-oriented services for low-income communities in Santa Clara and San Mateo counties. Through an internship with their Climate Resilient Communities team, she helped design and roll out Earthwise Kids, a climate change literacy pilot program for 9th graders. She spent her capstone quarter designing program goals, evaluation tools, and coordinating different environmental education groups to teach a week-long climate change and sea level rise curriculum. Earthwise Kids was integrated into Oxford Day Academy's Summer Session for their incoming class of 25 ninth graders. After feedback and review Acterra intends to expand the program to more high schools in the area. Here's a [link](#) to Daela's write-up and evaluation of the program she developed.

## 2019-2020

**Katie Holmes** (2019-20) ran a cleverly designed, rigorous experiment in eight student dorms to assess student interest in and willingness to pay for an environmentally friendly alternative to commonly used laundry detergents. The product Katie tested is packaged in biodegradable materials and lacks pollutants found in major detergent brands. Survey results demonstrated very high student interest in adopting the more environmentally friendly alternative. Katie's analysis pointed to recommendations for ways the university might make the product available to students in dorms at low cost. Adoption of her recommendations would help to reduce solid waste, contributing to Stanford's zero-waste goal, and reduce the load of harmful chemicals in wastewater entering the SF Bay.

**\*Lexi Neilan and Chris Escobedo** (2019-20) produced a [50<sup>th</sup> Anniversary Earth Day Podcast](#) that amplified and transformed seventh- and eighth-grade voices on the critically important topic of

\*Indicates community-engaged learning project.

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climate change. The podcast weaves a graceful, complex narrative that features Lexi and Chris' interviews with middle schoolers—and the students' interviews of their teachers, librarians, parents, grandparents, and neighbors. The podcast's storyline emphasizes the opportunities to work across generations to build a more sustainable future for all.

**Sabrina Mengrani (2019-20)**

Sabrina created a mini-comic on environmental activism, focusing on a protest staged in London by Extinction Rebellion. The protest focused on disrupting “business as usual” in the context of the climate crisis and targeted public transportation. The protest was widely criticized given that public transport is more commonly used by people who bear significant consequences for missing or being late to work—and that public transport is a less carbon intensive than automobiles. The project follows the thoughts of a young Londoner as they are wrestle with the ways that privileged narratives can shape environmental activism, drawing attention to the harm that such narratives can cause, and encouraging to an approach our activism from a place of mutual respect.

**Syler Peralta-Ramos (2019-20)**

Syler created a stunning, full length book entitled *Over the Horizon* that features hundreds of his gorgeous photographs from South Georgia Island and Svalbard. The book also includes several of essays which interweave both reflections from Syler's travels and contemplation of environmental threats facing polar regions.

**Lilla Petruska (2019-20)**

Lilla created a new course: EARTHSYS 22: Introduction to Landscape Architecture: Environmental Design and Urban Ecology. This 1 unit, nine-week course introduced students to landscape architecture. In the course students studied a brief history of the field, explored connections between science and sustainable and resilient urban ecosystems, and investigated a range of projects and topics relevant to landscape architecture. Students engaged with readings, lectures, thoughtful discussions, and foundational assignments that encouraged them to get outside and observe their surrounding landscapes.

**2020-21**

**\*Jessica Mi and Jayne Stevenson (2020-21)**

Jessica and Jayne earned this year's Capstone award from Earth Systems for their project entitled, *Policy Analysis of Solar Energy in Georgia, USA*. This project was completed in collaboration with Climate Cabinet and included an excellent paper accompanied by a series of data visualizations and interactive maps that made the issue come alive. This work is intended to educate state legislators in Georgia about the promise of solar power to create jobs, improve the economy and address Climate Change.

**Ameila O'Dohue and Samantha Baird(2020-21)** created a comprehensive curriculum to support field trips for New York 5th graders to visit Snow Hill Organic Farm—the O'Donohue family farm. They created all the necessary modules with background information and field trip preparatory activities. Once on the farm, students would explore 5 “stations” each thoughtfully designed to introduce new concepts central to organic farming and responsible stewardship of our shared planet.

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## 2020-2022

### **Joshua King (2021-22)**

For his senior capstone project, Joshua created a miniature magazine focused on food systems, particularly on problems and injustices in the modern food systems. Entitled *Regenerative Provisions*, this magazine attempts to weave together narrative storytelling elements with factual and education information. The purpose of this project was to serve as a proof of concept for a larger project he wanted to start.

### **Fenella Scutt (2021-22)**

Fenella created an aesthetic pamphlet to address mental health and planetary health in one. By providing a set of plant-forward food recommendations, the resource aims to empower individuals to take steps towards a happier mind and a healthier planet by choosing foods that address both simultaneously. The pamphlet contains nutritional benefits and environmental footprints of specific 'mood boosting' foods, accompanied by an introduction to eco-anxiety. Fenella hopes that the project can be continued in collaboration with Stanford Dining, students, and chefs.

**Jonathon Borja (2021-22)** worked with [Climate Cabinet](#) to investigate "critical infrastructure" statutes seeking to criminalize constitutionally protected rights to free speech and assembly. Jonathon identified a number of laws passed by state legislatures since 2018 that specifically target frontline activists protesting pipelines and other fossil fuel infrastructure. His [report](#) explores how critical infrastructure laws criminalize protest and the coordinated effort behind their proliferation across US states. Jonathon's work was featured in [The Guardian](#).

## IN PROGRESS

### **Bless Romo (2021-22)**

Bless created a podcast that presents a story about the nonprofit Watsonville Wetlands Watch (WWW) and the 6 sloughs of Watsonville, CA – the town she calls home. The podcast is informed and inspired by interviews with WWW members who shared why the 6 wetlands are special to the Watsonville community. Bless's story focused on the wetlands as a place for community building, connection, and collective climate action. She hopes the podcast will serve as an educational resource for WWW's outreach efforts and showcase the socio-environmental work being done in Watsonville to other communities.

**Lindsay Filgas (2021-22)** sought to strengthen skills for imagining bold environmental solutions. Recognizing that often we focus more on problems than solutions, and that it can be challenging to imagine a radically better world, Lindsay created a video series of interviews with students in which they were asked to imagine what their ideal future would look like. Lindsay then built a website to hold the videos, along with reflections on the students' visions, resources for further learning, and interactive activities to allow viewers to practice imagining themselves.

### **Chloe Gould (2021-22)**

[A report analyzing management gaps across FSM coastal fisheries management and marine protected areas management](#)

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