Indigenous Knowledge Systems Initiative
Working Syllabus



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REMAIN

INDIGENOUS SOCIETY OF
ARCHITECTURE, PLANNING, & DESIGN

ENVISION RESILIENCE
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Table of Contents

About Envision Resilience (pg. 3)
About the Indigenous Knowledge Systems Initiative (IKSI) (pg. 3)
About the Indigenous Society of Architecture, Planning, and Design (ISAPD) (pg. 3)
A Note on IKSI Approach and Resources (pg. 3)
The IKSI Working Syllabus (pg. 7)
Mapping and Tools (pg. 7)

- **Climate Change + Sustainability**
- **Land**

New England + Native America (pg. 8)

- **Indigenous Farms + Food**
- **Land + Water**
- **Indigenous Place Names**

Indigenous Knowledge (pg. 9)

- **Building Materials**
- **Climate Change + Sustainability**
- **Design**
- **Education**
- **Government Policy**
- **Housing**
- **Land**
- **Water**

Endnotes (pg. 15)

About Envision Resilience

Envision Resilience works to advance innovative city planning and design in the face of climate change through student and community partnerships. By connecting current and future professionals working across disciplines, the organization creates opportunities for communities to reimagine climate challenges and inspire resilient solutions. Envision Resilience, originally developed by Remain, is part of the philanthropic organizations and initiatives created and funded by Eric and Wendy Schmidt to work toward a healthy, resilient, secure world for all.

About the Indigenous Knowledge Systems Initiative (IKSI)

The Indigenous Knowledge Systems Initiative (IKSI) was initiated as part of the Envision Resilience Design Studio curriculum to respectfully acknowledge Indigenous historical and contemporary ties to the Envision Resilience Challenge sites. IKSI includes the Envision Resilience Tribal Land Acknowledgement and the IKSI Working Syllabus. IKSI supports Indigenous knowledge and Native science, alongside western resources, as a vital body of knowledge by partnering with Indigenous designers in the fields of architecture and landscape architecture.

About the Indigenous Society of Architecture, Planning, and Design (ISAPD)

The Indigenous Society of Architecture, Planning, and Design (ISAPD) supports the Envision Resilience Indigenous Knowledge Systems Initiative (IKSI). IKSI embodies innovative and effective knowledge sharing to equip individuals and communities with principles and design solutions that elevate all architecture and related fields to embrace land and environment as fundamental for living.

ISAPD is an organization focused on increasing international knowledge, consciousness and appreciation of Indigenous architecture, planning and design, inclusive of landscape architecture and environmental design, in academia and the professional realm.

A Note on IKSI Approach and Resources

IKSI supports Indigenous knowledge and Native science, alongside western resources, as a vital body of knowledge by partnering with Indigenous designers in the fields of architecture and landscape architecture.

According to the *Science and Traditional Knowledge Report* from the International Council for Science Study Group on Science and Traditional Knowledge, Indigenous knowledge or traditional knowledge is defined as:

> a cumulative body of knowledge, know-how, practices and representations maintained and developed by peoples with extended histories of interaction with the natural environment. These sophisticated sets of understandings, interpretations and meanings are part and parcel of a cultural complex that encompasses language, naming and classification systems, resource use practices, ritual, spirituality and worldview.[1]

Indigenous knowledge considers intergenerational oral history and knowledge transfer, through experience or interaction, as information of authority or credible sources. The Canadian Encyclopedia describes oral history or "oral traditions" as "the vital method of passing down stories, histories, spiritual lessons or teachings, songs, poems, prayers, and ways of survival for thousands of years".[2] Not all Indigenous groups utilized the written word as a way to transmit knowledge. This can limit the inclusion of traditional knowledge sources when conducting work that depends on written documentation because of the Western belief that the "written word is more trustworthy than oral histories". [3]

Depending on the geographic area, the earliest available written public documents, scaled surveys and maps regarding Indigenous territory and spatial history of the area were conducted by those outside of the community. The people who conducted the documentation ultimately had their own purpose, world-view and belief system that influenced the work produced.

Western sources and Indigenous knowledge share fundamental attributes. According to George Nicholas, Professor of Archaeology at Simon Fraser University, both bodies of knowledge "are constantly verified through repetition and verification, inference and prediction, empirical observations and recognition of pattern events". [4] Traditional knowledge has informed modern science in the areas of "taxonomy, medicine, agriculture, natural resource management, and conservation", according to the *Science and Traditional Knowledge Report*.[5]

In the United States, traditional or Indigenous knowledge is now starting to gain recognition of the value and importance it can have to science and technology. For example, in December

of 2023, Interior Secretary Deb Haaland, the first Native American Cabinet member incorporated, for the first time, a chapter in the agency's department manual formalizing Indigenous Knowledge as a foundational system of knowledge to be included in department actions and scientific research in the future.[6] Read the department manual chapter here.[7]

In the past, Indigenous communities have experienced the extraction of their knowledge. Though Western thought communities are increasingly embracing Indigenous Knowledge or are engaging in formal international or domestic negotiations for exchange, Indigenous communities do not depend on Western thought to authorize their knowledge base. As knowledge from time immemorial is passed down from generation to generation, Indigenous communities rightfully retain the right to their intellectual property and have the autonomy to collaborate and share knowledge as they so choose.

As the Western world view remains foundational to academia in the United States, the IKSI syllabus provides resources that are credible from a Western perspective, alongside pertinent sources of Indigenous Knowledge today. The IKSI syllabus shares published and publicly available work from Indigenous scholars and work made collaboratively with tribal communities as a way to support Indigenous Knowledge as it relates to spatial environments, design and sustainability. Both bodies of knowledge are included to support the understanding that there are multiple ways of knowing. Resources are presented to spark collaboration with the common goal of creating solutions to climate change that benefit tribal and all communities.

Envision Resilience is not an authority on historic or modern-day tribal entities, or tribal land bases, and the information presented may contain errors and omissions. Please refer to the sources cited to gather more information on historic and contemporary tribes of today.

IKSI is informed and guided by the U.S. Department of Energy's *Working with Indian Tribal Nations* guide, published in December 2000, the White House Office of Science and Technology Policy (OSTP) and the Council on Environmental Quality (CEQ) guidance on Indigenous Knowledge and the U.S. Department of Arts and Culture *Honor Native Land Guide*.

IKSI utilizes information from Native Land Digital. Native Land Digital is a Canadian not-for-profit organization that manages the mapping project indicating Indigenous lands, languages and treaties across the globe and allows for Indigenous tribes to provide land affiliations and information today. Native Land Digital's mission is to map Indigenous lands in a way that changes, challenges and improves the way people see history and the present

day and to strengthen the “spiritual bonds that people have with the land, its people, and its meaning”.[8]

In the words of the organization, Native Land Digital:

> Native Land Digital honors the sovereignty of all Indigenous nations, their lands, and their waters. We recognize that these boundaries and territories are representations of the sacred. We respect the rights of Indigenous data sovereignty, and we are committed to an ongoing process of collaboration, growth, and learning. We work to update and replace information that is a continuation of trauma caused by theft, injustice, misinformation, and ignorance. The map is a living document, informed by the contributions of Indigenous communities, Indigenous knowledge holders and their stories. It does not claim to represent official or legal boundaries. We encourage you to connect directly with the Indigenous nations to learn more about their territories and histories. This is an honouring of Indigenous resilience past, present and future. [9]

The IKSI Working Syllabus

The IKSI Working Syllabus provides participating studio teams as well as the public with foundational resources focused on Indigenous sustainability within architecture, planning and design, inclusive of landscape architecture and environmental design.

As Envision Resilience sites are added each year and the program continues to expand, analyzed resources and case studies will be added to the IKSI Working Syllabus.

In each section, resources are presented in the following order:

- Project, Initiative, Organization
- Article
- Document, Book

Mapping and Tools

Resources of historic and contemporary maps of Indian-related geographic data of place names, settlement sites, trails and tribal range are presented. In addition, current resources indicating the physical environment, natural resources of Indian lands, reservation and trust land and climate resiliency efforts are found here.

- **Climate Change + Sustainability**
  - Indigenous Peoples and Disaster Risk Reduction: Participation for all
  - Tribal Energy Projects Database: Office of Indian Energy Policy and Programs
  - U.S. Climate Resilience Toolkit
  - Yale Environment 360: "Indigenous" Search Results
  - Yale Forests & Indigenous Narratives: A Working Syllabus
- **Land**
  - Igliniit (Trails) Project
  - Native American Spaces: Cartographic Resources at the Library of Congress
  - Native Land Digital Mapping Project - Native Land Digital is a Canadian not-for-profit organization that manages the mapping project indicating Indigenous lands, languages, and treaties across the globe

and allows for Indigenous tribes to provide land affiliations and information today. Native Land Digital's mission is to strive to map Indigenous lands in a way that changes, challenges, and improves the way people see history and the present day, and to strengthen the "spiritual bonds that people have with the land, its people, and its meaning".

- Native Northeast Portal
- Shoreline Mileage of the U.S. (NOAA, 2016)
- Treaty Boundaries and Cessions Historical Maps (Library of Congress)

New England + Native America

In the following section, articles and other resources are presented on historical and contemporary Indigenous programming and practices in the greater New England region. This section is ever growing and the IKSI team welcomes suggestions for more resources to include.

- **Indigenous Farms + Food**
  - First Light Shellfish Farm (Mashpee Wampanoag Tribe)
  - Mi'kmaq Farms & Fish Hatchery
  - Narragansett Food Sovereignty Initiative (NFSI) (Katharine Kirakosian, Tomaquag Museum)
  - Native American Agriculture Fund
  - Passamaquoddy Wild Blueberry Company
  - How a Native American tribe on Long Island is losing its land to rising seas (Emma Newburger, December 2021)
  - Mashpee Wampanoag Tribe Aquaculture Farm Approved For Popponesset Bay (Alex Megerle, July 2023)
  - Saved by seaweed: nuns and Native women heal polluted New York waters using kelp (The Guardian, June 2023)
  - Marcellino, Angela C. *The True Natives of Cape Cod Massachusetts and Their Food Ways*. Portsmouth, NH, MindStir Media, January 12, 2023.
- **Land + Water**
  - The Northeast Indigenous Climate Resilience Network
    - Tribal Nation Partners and Indigenous Peoples
  - Tribal and First Nation Partners from New England and New York Participate in a Clean Water Act Training (New England Water Science Center, June 2022)

        - Indigenous history lies buried in far downeast Maine. The race is on to preserve it. (Sabrina Shankman, August 2024)
        - Tribal Nonpoint Source Program (EPA)
        - Supporting Connectivity Along the New England National Scenic Trail
    - **Indigenous Place Names**
        - Douglas-Lithgow, R.A. *Dictionary of American-Indian Place and Proper Names in New England*. Salem, Salem Press, 1909. https://ia902809.us.archive.org/20/items/dictionaryofamer00doug/dictionaryofamer00doug.pdf

Indigenous Knowledge

The greater Indigenous knowledge base of climate change and sustainability, education, government policy, housing and land are presented here. To see Indigenous knowledge base resources specific to New England, refer to the New England + Native America section.

- **Building Materials**
    - Rael San Fratello 3D Prints Architecture with a Political Edge (Lydia Lee, February 2023)
    - On Indigenous Peoples' Day, Revisiting the Meaning of "Native Architecture" (Akiva Blander, October 2023)
- **Tribal Climate Action Plans + Frameworks**
    - Priority Climate Action Plans for States, MSAs, Tribes, and Territories (Environmental Protection Agency)
    - Dr. Kelsey Leonard: Indigenous Waters, Climate and Sustainability
    - Aanji-bimaadiziimagak o'ow aki: Climate Change Vulnerability Assessment Version 2 (Great Lakes Indian Fish and Wildlife Commission, January 2020)
    - Aroostook Band of Micmacs Climate Adaptation Plan (Aroostook Band of Micmacs, February 2022)
    - Climate Change Adaptation Plan for Akwesasne (St. Regis Mohawk Tribe, August 2013)
    - Draft Priority Climate Action Plan Passamaquoddy Indian Township (April 2024)
    - Houlton Band of Maliseet Indians Priority Climate Action Plan (March 2024)
    - Mashpee Wampanoag Tribe Climate Action Plan (2024)
    - Narragansett Indian Tribe Priority Climate Action Plan (April 2024)
    - Priority Climate Action Plan Wampanoag Tribe of Gay Head (Aquinnah) (March 2024)

- Shinnecock Indian Nation Climate Vulnerability Assessment and Action Plan (September 2019)

➢ **Climate Change + Sustainability**

- Ekvn-Yefolecv: Natural Building & integrated Systems
- Group on Earth Observations (GEO) Indigenous Alliance
- Indigenous Environmental Network
- Native Fish Coalition
- Swinomish Climate Change Initiative
- An Indigenous-Led Team Is Transforming a Minneapolis Superfund Site into a New Urban Farm (Kate Nelson, July 2023)
- Chumash tribe fights to protect California's coastline (Sylvia Foster-Frau, July 2023)
- Climate Crisis: What We Can Learn From Indigenous Traditions (Jordan Davidson, October 2020)
- Climate justice means protecting the rights of indigenous peoples – they are the best stewards of their lands (Dinamam Afer Jurum Tuxa & Leila Saraiva, November 2021)
- Devon Parfait, Louisiana Tribal Chief, on Climate Change and Preserving Customs (Zoe Dutton, May 2023)
- Effects of Climate Change on Marginalized Communities (Charlotte Dwyer, January 2020)
- Forest Equity: What Indigenous People Want from Carbon Credits (Yale Environment 360, December 2022)
- 'Forest gardens' show how Native land stewardship can outdo nature (Gabriel Borkin, April 2021)
- For 60,000 Years, Australia's First Nations Have Put Fire to Good Use (Yale Environment 360, August 2024)
- How Native Tribes Are Taking the Lead on Planning for Climate Change (Nicola Jones, February 2020)
- Indigenous Knowledge and the Future of Science (Jimmy Thomson, May 2022)
- Indigenous Peoples Are the World's Best Conservationists. Climate Funders Must Recognize That (Hindou Oumarou Ibrahim, May 2024)
- Indigenous youth must be at the forefront of climate diplomacy (Sogbanmu, et al, August 2023)
- Jeremy Frey's Baskets Holding the Identity of an Indigenous People (Hilarie M. Sheets, April 2024)

- Lessons Learned from Centuries of Indigenous Forest Management (Richard Schiffman, August 2018)
- Louisiana's First Climate Refugees (Robynne Boyd, September 2019)
- Morocco's centuries-old irrigation system under threat from climate change (Climate Home News, June 2023)
- Native Knowledge: What Ecologists Are Learning from Indigenous People (Jim Robbins, April 2018)
- Natural Resource Management: Altering the Environment (Anjelica S. Gallegos, 2021)
- Rising Caribbean Sea Pushes Indigenous Group Off Island (José de Córdoba, November 2022)
- Shackan Indian Band and Xwisten First Nation: Reinstating cultural burning practices (Esther Lambert, First Nations' Emergency Services Society of BC)
- 'The Oceans Have Always Connected Us' (Jenna Kunze, June 2023)
- Three Indigenous American tribes to get funding to manage ocean and coasts (The Guardian, APril 2024)
- Tree Keepers: Where Sustaining the Forest Is a Tribal Tradition (Fred Pearce, July 2023)
- WAMPUM Adaptation framework - eastern coastal Tribal Nations and sea level rise impacts on water security (Kelsey Leonard, January 2021)
- Cajete, Gregory, PhD. *A People's Ecology: Explorations in Sustainable Living*. Santa Fe, New Mexico, Clear Light Publications. 1999.
- Cajete, Gregory, PhD. *Native Science: Natural Laws of Interdependence*. Santa Fe, New Mexico, Clear Light Publications. 2016.
- Cajete, Gregory, PhD. *The Spirit of the Game: An Indigenous Wellspring*. Durango, CO, Kivaki Press. 2005.
- Kiddle, Rebecca, et al. *Our Voices: Indigeneity in Architecture*. Novato, California, ORO Editions. 2018.
- Kiddle, Rebecca, et al. *Our Voices II: The DE-Colonial Project*. Novato, California, ORO Editions. 2021.
- Watson, Julia. Lo-Tek: Design by Radical Indigenism. Los Angeles, Taschen America, LLC. 2020

➢ **Design**

- American Indian Council of Architects and Engineers
- Indigenous Architecture Resources (Ontario Association of Architects)
- Indigenous Society of Architecture, Planning, & Design
- Institute of Integrated Regenerative Design

- international indigenous design charter
- smoke architecture (Indiana University Bloomington Indigenous Design)
- Architect Embraces Indigenous Worldview in Australian Designs (Will Higginbotham, February 2024)
- Designer Julia Watson on Reaching the Age of the Symbiocene (Malaika Byng, June 2022)
- 'How Indigenous Architects, Artists, and Activists Are Using Design to Restore Tribal Sovereignty (Abigail Glasgow, November 2022)
- Our environment shapes us': Ojibwe architect Sam Olbekson designs from an Indigenous perspective (Amanda Su, November 2022)
- Where Are My People? Native American, First Nations & Indigenous in Architecture (Kendall A. Nicholson, Ed.D., Assoc. AIA, NOMA, LEED GA, February 2021)
- Watson, Julia. *Lo-Tek: Design by Radical Indigenism*. Los Angeles, Taschen America, LLC. 2020

➢ **Education**

- Abbe Museum Educator Hub
- Educational Resources (Wabanaki Reach)
- Essay: Wampanoag Experience Project highlights Native history in the South Coast area (Hartman Deetz, September 2022)
- Interview: Regis Pecos of the Leadership Institute at Santa Fe Indian School (Anjelica S. Gallegos, 2021)
- Land-grab universities: Expropriated Indigenous land is the foundation of the land-grant university system (Robert Lee and Tristan Ahtone, March 2020)
- Reclaiming the Sacredness of Tribal Women: Honoring the Words of Tillie Black Bear (National Indigenous Women's Resource Center, November 2023)
- Wampum: More than Just a Bead by Hartman Deetz, CCMM (Cape Cod Maritime Museum, February 2022)
- Wopanaak language reclamation program: bringing the language home (Jessie Little Doe Baird, March 2017)
- Simpson, Leanne Betasomaske. 2014. *Land as pedagogy: Nishnaabeg intelligence and rebellious transformation*. Decolonization: Indigeneity, Education & Society, Vol. 3, No. 3, pp. 1-25. https://jps.library.utoronto.ca/index.php/des/article/view/22170/17985
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- Greenlaw, Suzanne & Frey, Gabriel. 2021. *The First Blade of Sweetgrass*. Tilbury House Publishers.

➢ **Government Policy**

- CARE Principles for Indigenous Data Governance
- Understanding Tribal Sovereignty (Wabanaki Alliance)
- The Impact of Government Policy on Indigenous Architectures (Anjelica S. Gallegos, 2021)
- The Status of Tribes and Climate Change Report (Department of Interior, August 2021)
- Indigenous People and Disaster Risk Reduction (United Nations Department of Disaster Risk Reduction)

➢ **Housing**

- Designing for tribal communities with Tammy Eagle Bull, FAIA (Greg Menti, November 2023)
- Joseph Kunkel Is Fast-Tracking Quality Housing for Indigenous People (Kelly Beamon, October 2020)

➢ **Land**

- Ethical Space (conservation through reconciliation partnership)
- Acknowledging Indigenous land is the first step in taking better care of it (Nikoosh Carlo, October 2020)
- A spatial overview of the global importance of Indigenous lands for conservation (Stephen Garnett, et al, July 2018)
- How a Northwest tribe is escaping a rising ocean (John Ryan, NPR, February 2024)
- How Returning Lands to Native Tribes Is Helping Protect Nature (Jim Robbins, June 2021)
- In Maine, a return of tribal land shows how conservation can succeed (Bina, Venkataraman, November 2023)
- Investing in Indian Country is Investing in America (Deb Haaland, August 2023)
- Language Protectors (PBS Video, November 2023)
- New research on the impacts of restrictions on the applicability of federal Indian policy to the Wabanaki Nations in Maine (Harvard Kennedy School's Ash Center for Democratic Governance and Innovation, December 2022)
- Penobscot Nation to Reclaim Ancestral Land in North Central Maine (Native News Online Staff, November 2023)

- Solomon Islands Tribes Sell Carbon Credits, Not Their Trees (Jo Chandler, April 2024)
- Indigenous Site Surveying on the New England Trail (Kayleigh Moses, September 2021)
- The Original Long Islanders Fight to Save Their Land From a Rising Sea (Sengupta and Lawal, April 2021)
- Tribal historian: Rising sea levels threaten ancient artifacts and burial sites (Seacoast Online, September, 2021)
- We Still Live Here - Âs Nutayuneân (Makepeace Productions, November 2011)

➢ **Water**

- A decade-long cleanup of the Penobscot River to begin with pilot project (Irwin Gratzc, July 2024)
- Indigenous advocacy leads to largest dam removal project in US history (Hilary Beaumont, December 2023)

Endnotes

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