

Sustaining Team Science: Dynamic Design Planning as a Collaborative Ecology

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On a National Science Foundation-funded research project in New England, dozens of sustainability scientists are practicing innovative team science through shared leadership, distributed decision making, and multi-dimensional knowledge integration. This distributed process is made increasingly visible and vital through an ethnography that spans multiple institutions and disciplines across the duration of our multi-year effort. In the process, we are composing an ecological model of collaborative team science.

Project Overview

The “Future of Dams” effort is the second project of the New England Sustainability Consortium (NEST), an inter-state, multi-institution research collective focused on enhancing the use of science in decision making for the region. In its current iteration, NEST includes researchers from institutions in New Hampshire, Maine, and Rhode Island producing interdisciplinary science to support decision making about dams. As part of the original vision for this project, Dynamic Design Planning (DDP) was conceived as a project-wide strategy for collaboratively and iteratively recognizing how our team functions and adaptively shaping its development.

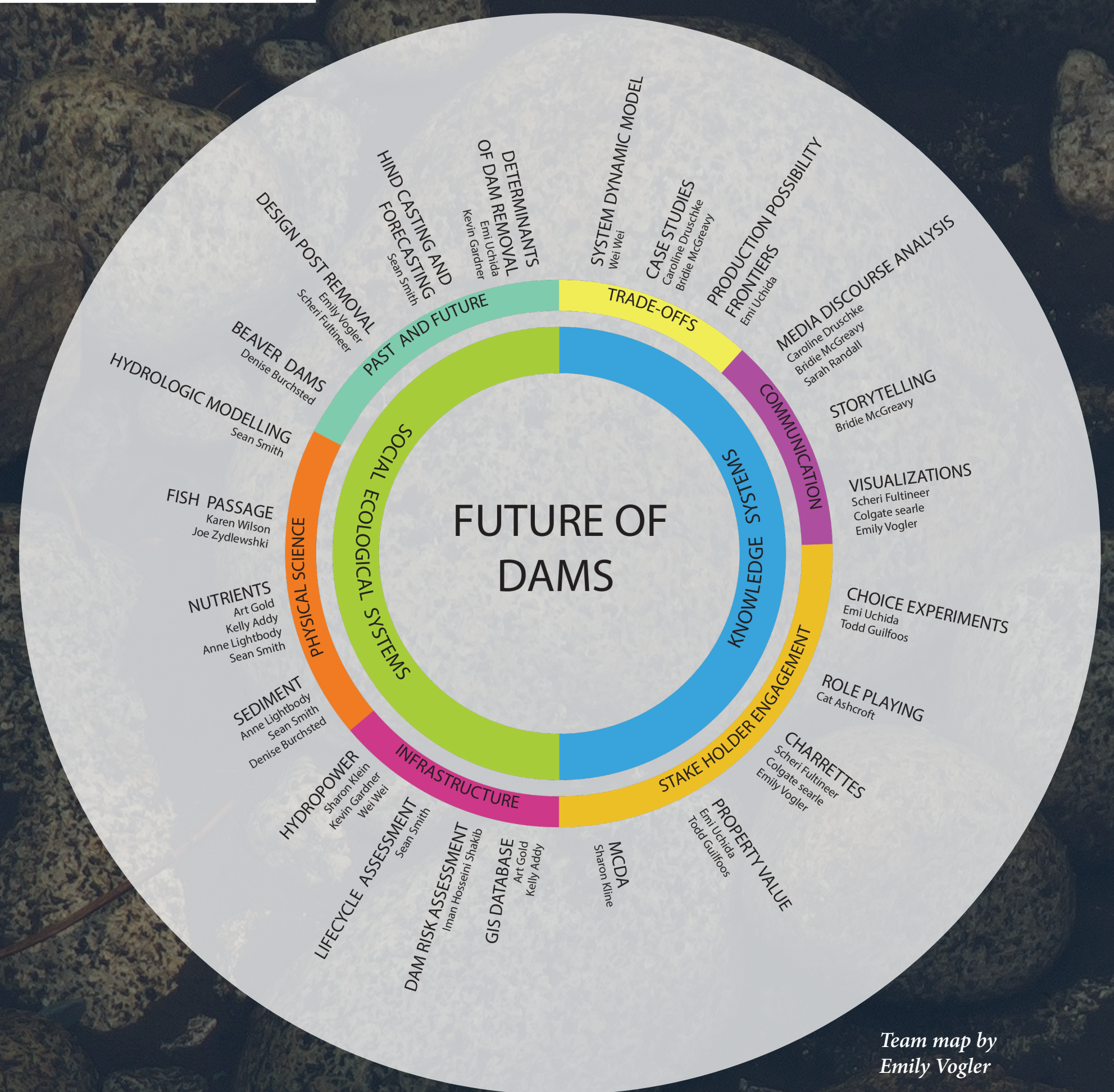
Components of DDP

Dynamic: Activities such as all-team integration meetings, an innovative sustainability course, and our ethnography (described below).

Design: Collaborative objects such as the original grant proposal, an adaptive communication framework, and orienting visualizations.

Planning: A “working group” approach for subteams to dynamically form around key emerging needs and dissolve when those needs are met.

(Support): Tools and technologies that aid our collaboration, such as the Google Suite, News Digest emails, and Zoom videoconferencing software.



Team map by
Emily Vogler

Ethnographic Methods

An ongoing ethnography “gets under the hood” of our collaboration to learn how the project is working, how the team wants it to work, and how to align these. Our communication research mixes established and innovative ethnographic methods.

Data collection: Semi-structured interviews (n=24) and participant observation.

Participant selection: Purposive/comprehensive.

Interim analytical approach: Rapid interview tracking through a 4-step process (explained on the right) to continually and iteratively share emerging insights with the team as they develop.

Rapid Interview Tracking:

- I. In-depth note-taking
 - II. Detailed note transcription
 - III. Response aggregation
 - IV. Response synthesis
- We then share our synthesis reports with team members on a regular basis.



Collaboration map
by Emily Vogler

An Ecology of Collaboration

Our ethnography has revealed key domains where the team articulates an ecological approach to collaboration, including two case examples where diverse forms of leadership and metaphors that matter for collaboration together demonstrate how a collaborative ecology is emerging within our collective.



Final meeting of Learning from Dams, a cross-institutional sustainability science course. Photo by Tyler Quiring.



The newly-formed collaborative blogging editorial board at the June 2017 all-team meeting. Photo by Allison Wasiewski.

Diverse forms of leadership

- Hierarchical/traditional
- Distributed/shared
- Hybrid (working groups and multiple connected individual leaders)

Metaphors matter for collaboration

- “Stitching together” our various states and institutions
- “Weaving, not gluing” different types of knowledge together
- “Finding common threads” across disciplines and stakeholders

Flowing Forward

Our team’s commitment to Dynamic Design Planning becomes not merely another task but a key resilience factor. As an ecological approach to collaboration, DDP allows us to integrate knowledge while growing, changing, and sustaining our organization in the process. As a model process for both cultivating and responding to provocative but nutritive change, DDP helps us engage with ecological complexity to become something new and more resilient together.

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