

Communication for Enhanced Resilience within Intertidal Ecologies and Shellfishing Communities



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Key Insights

This case study demonstrates an ecological approach to communication, or rhetoric, in which human interactions with one another and within environments are shaped by strategic actions and use of symbols; interpersonal relationships and identity characteristics; and material conditions like tides and physical spaces. These multiple dimensions influenced efforts to open closed clam flats in Frenchman Bay, an ongoing effort associated with the Frenchman Bay Partners conservation action planning process. Identifying and then changing strategic, relational, and material approaches to communication helped shellfish harvesters, regulators, researchers, and municipal planners improve their monitoring, develop and implement adaptive strategies, and accomplish specific objectives for the ecological and economic resilience of intertidal mudflats.

Introduction



Intertidal mudflats along Maine's coast are essential to thriving coastal ecologies, economies, and communities. Soft-shell clams, *Mya arenaria*, provide food for marine organisms and generate income for approximately 1,700 commercial harvesters in the State. Shellfish ecologies and economies face several immediate threats, including predation by invasive species, persistent fecal contamination, and ocean acidification. Shellfish management to protect public health and promote the sustainability of the resource and livelihoods that depend on it occurs within a governance arrangement with federal, state, and municipal actors. Effective governance requires diverse individuals to work together to monitor, prepare for, and respond when changes occur. Recognizing this, the Frenchman Bay Partners initiated a conservation action planning process to create a partnership network to build resilience to present and future changes within intertidal mudflats as Social-Ecological Systems (SES).

Figure 1. Frenchman Bay watershed and locus map in Acadian Region of Down East Maine.

Case Study Methodology

We bring rhetorical theory (Scott, 1973; Stormer & McGreavy, Forthcoming) in the discipline of communication and resilience thinking (Folke et al., 2010) to a case study (Yin, 2013) of the 610 Project, an effort to open 610 acres of closed clam flats. Our ecological approach to communication emphasizes how rhetoric's strategic, relational, and material dimensions can promote adaptive capacities and resilience.



Research Questions

- How do we restore and open closed clam flats?
- How does rhetoric shape our ability to open closed clam flats and build SES resilience?

Data Collection & Analysis

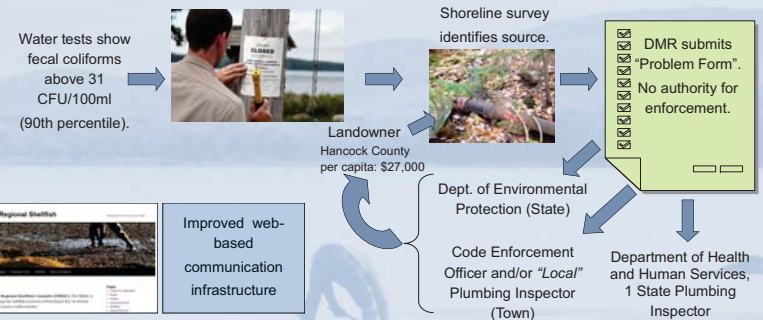
- Participant observations at >60 meetings with field notes
- 2 focus groups (n=15)
- Interviews (n=25)
- Project document archive with e-mails, agendas, meeting minutes
- Thematic analysis and case study explanation building (Yin, 2013).

Strategic



Strategic rhetoric allowed collaborators to discuss and prioritize clam flat closure areas based on pollution source status, abundance, and availability of the resource. The strategies detailed below improved the access, relevance, and timeliness of information exchanged, increased communication frequency among collaborators, and responded to the need expressed by the clam harvester quoted in the photo to the left to understand the governance and decision making process related to opening closed clam flats.

Governance for Identifying and Mitigating Bacterial Pollution of Clam Flats



Created 610 project advisory group that used face-to-face meetings and e-mail

Developed economics report that supported arguments to towns and funding agencies



Improved web-based communication infrastructure

Case Study Findings

Relational & Material

Relational rhetoric fostered partnership formation, created opportunities for diverse forms of leadership within the group, helped group members identify shared objectives in opening closed clam flats, and promoted understanding across differences in occupation, interests and resource use.



Material rhetoric refers to how the tides affected when members of the group could meet; how going out on the mudflat together promoted identification of the status of the resource and social identification across difference; and how material connections to place helped motivate and sustain participation in resilience-related efforts.

Resilience Outcomes

Resilience is about maintaining the structure and function of SESs, anticipating and preparing for change, and promoting adaptive responses to respond, maintain, or transform a situation when necessary (Folke et al., 2010).



Strategic, relational and material approaches to communication have promoted SES resilience through the following key outcomes:

- 1) Identifying the status of and process for opening closures.
- 2) Achieving significant progress on opening 70 acres of closed clam flats, projected by December 2015, and building capacity for opening others.
- 3) Promoting identification of and response to a massive influx of green crabs, an invasive predator of soft-shell clam and new projects to develop adaptive capacities to ocean acidification.

