

A Social Landscape Analysis of Land Use Decision Making in the Towns of the Lamprey River Watershed

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Knauss Brown Bag Series

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Research supported by the above programs and entities.

Lamprey River Flowing into Great Bay

An aerial photograph showing the Lamprey River flowing into Great Bay. The river is a dark blue line winding through a landscape of green forests and open fields. The bay is a larger body of water in the distance, under a blue sky with scattered white clouds.

Social Landscape

Land Use Pressures in the Watershed

Effects on Great Bay

Case Study Background

Methods

Data and Analysis

Results

Conclusions / Consequences

Value of Social Science for Coastal Management

Social Landscape:

communities, resource use (*land use*)
local knowledge (*communication, connections*),
sense of place (*cultural inheritance, history*)
varying across space (*watershed*)



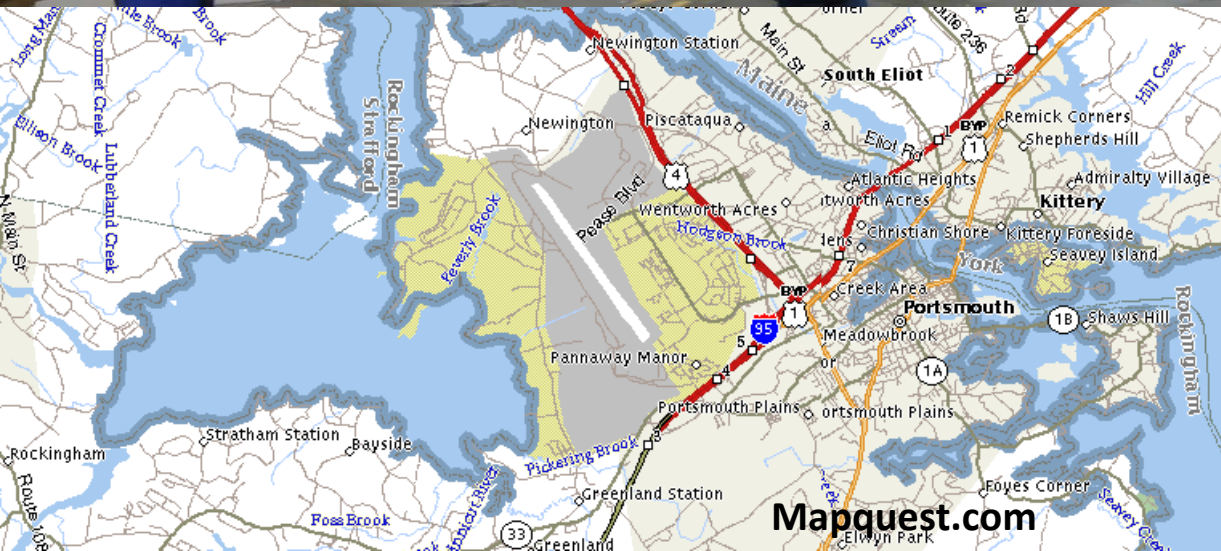
Great Bay
National Estuarine Research
Reserve (NOAA)
&
Piscataqua Region Estuaries
Partnership (EPA)

Images, L-R:
Gulf of Maine
Council on Mar Env,
geology.com,
NOAA

Lamprey River Flowing into Great Bay

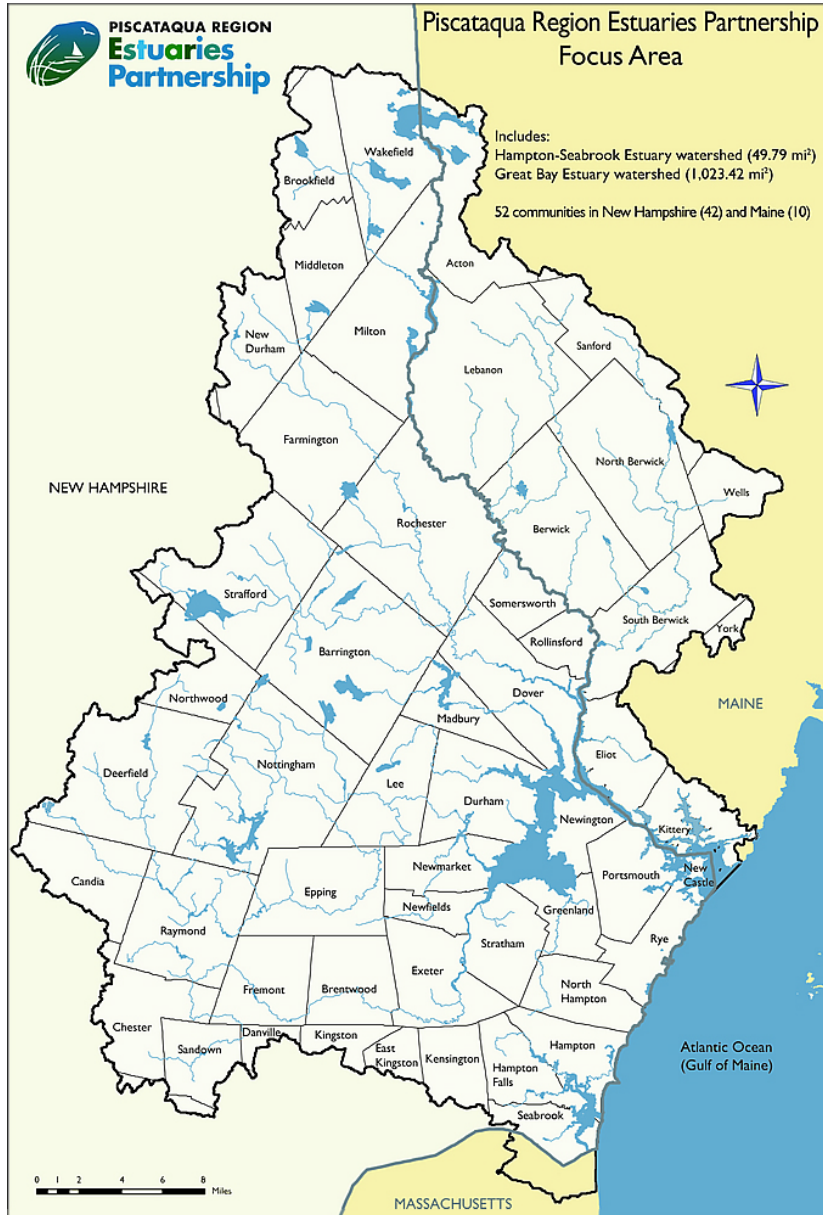


Newmarket, 2006



- 45 sq km tidal water
- 232 km shoreline
- tidal currents 0.75 – 2.0 m/sec
- Flushing slow, 25 - 30 days
- Due to hydrology, pollution affects entire system

Growth in Seacoast Communities



1950



1970



1998



2020



Images:
 PREP & USGS

Anthropogenic Pressures on Great Bay

- All watersheds increased population pressure

- Impervious surface area 1500 acres/yr (1185 acres/yr in 2006)

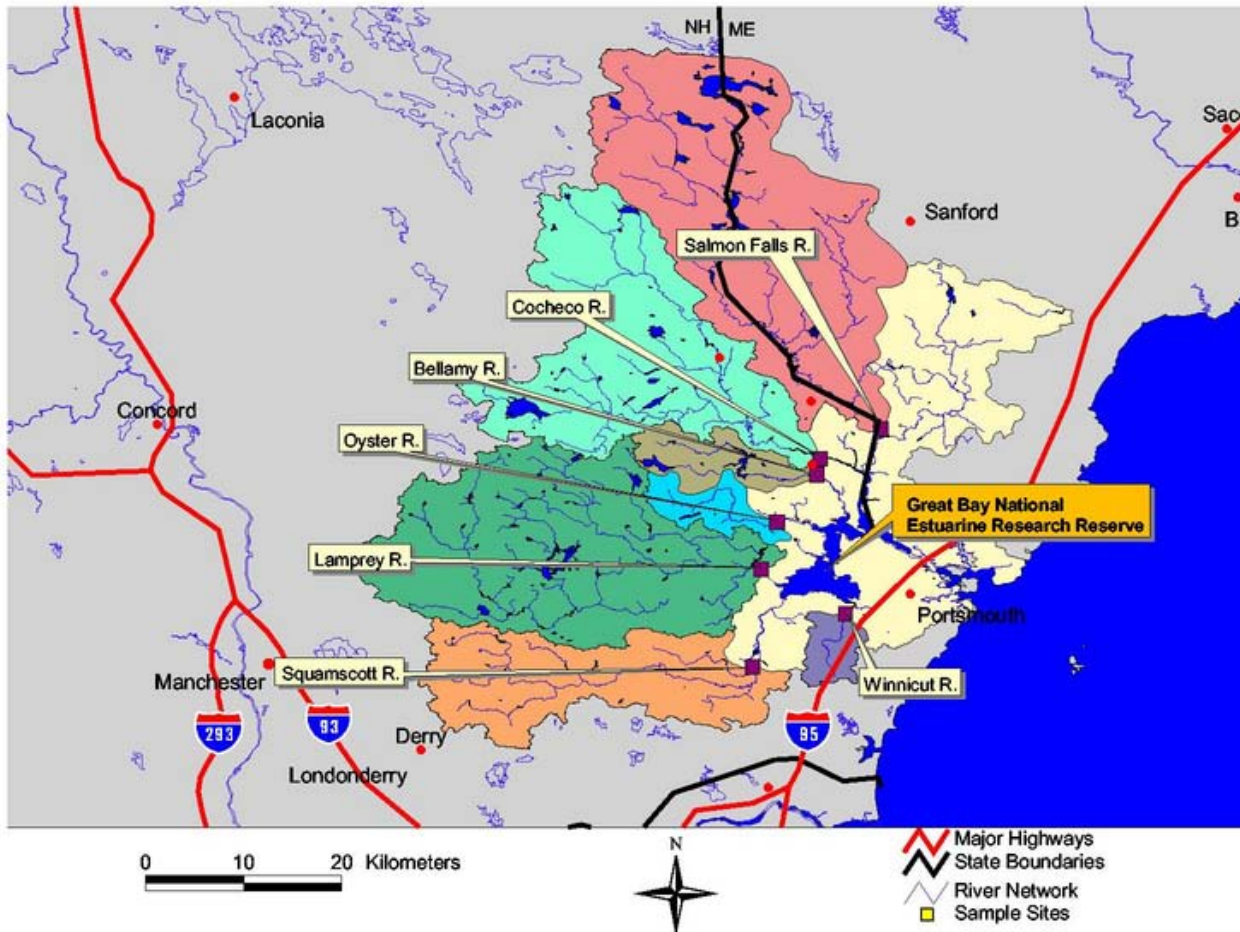
- 50,351 acres impervious surfaces in watershed in 2005 (7.5 % land area)

- N load increased 42% in last 5 years

- All towns sprawling

- Pop growth 17.2% (90–04); 2 counties: ~ 450,000

Efforts Needed:
within coastal watersheds
for growth, development &
land use planning



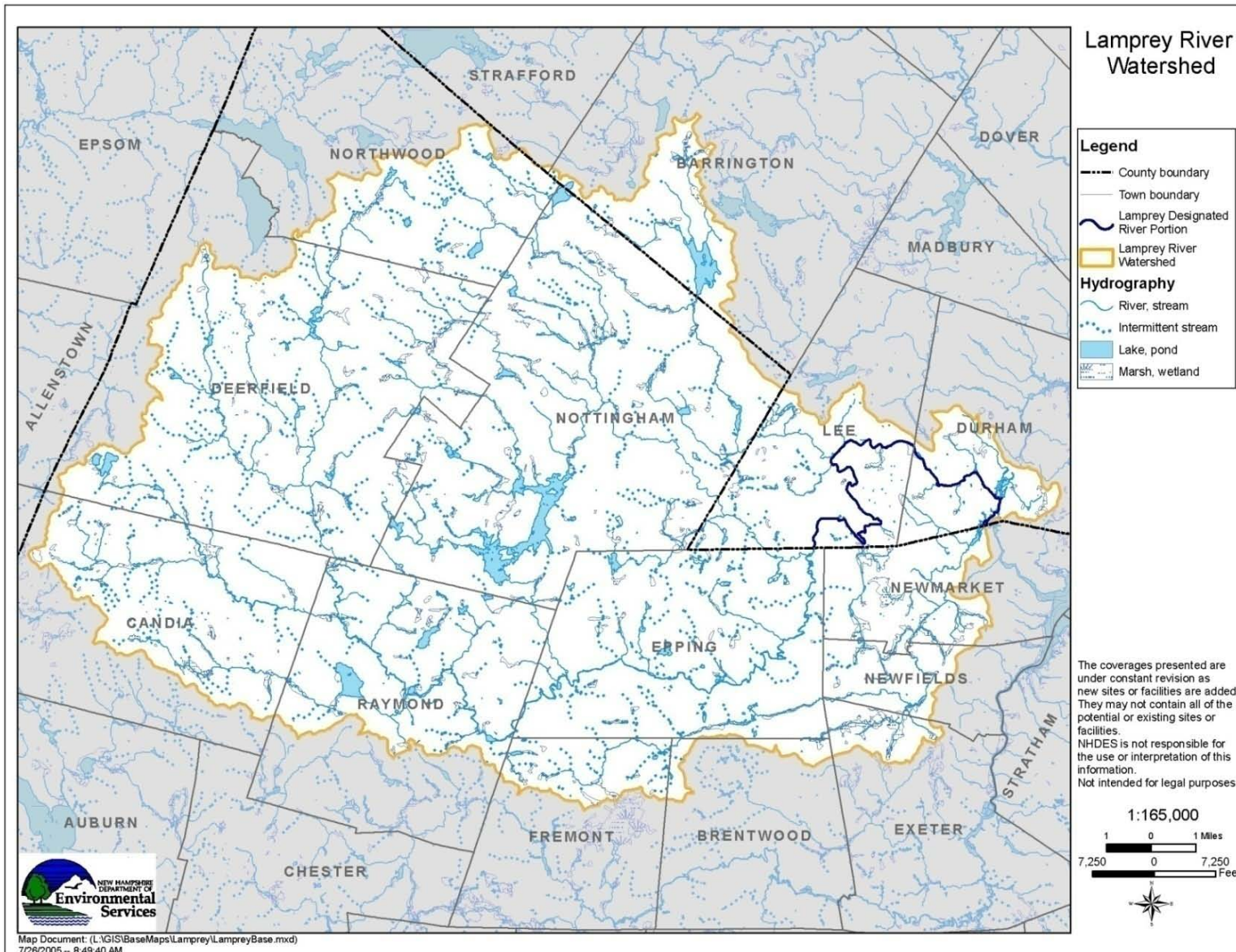
Current Land Use Decision Making.... Is Severely Challenged



How do we start to re-frame land use planning?

Is there a potential for watershed-based land use decision making? How can this be determined?

Case study: Lamprey River Watershed, 14 towns and land use decision makers



Active watershed efforts

Diverse towns

Diverse natural features

Many transboundary issues

NH Land Use Decision Making

- **local government** function
- **no mandated regional planning** frameworks
- towns required to develop Master Plans
- ***Regional Planning Commissions*** help in advisory role for planning, land use, transportation, growth and environmental protection

- **Land use groups involved:**

Planning Boards

Conservation Commissions

Zoning Boards

Open Space Commissions

Heritage Commissions /

*Historical Societies / Historic District
Commissions*

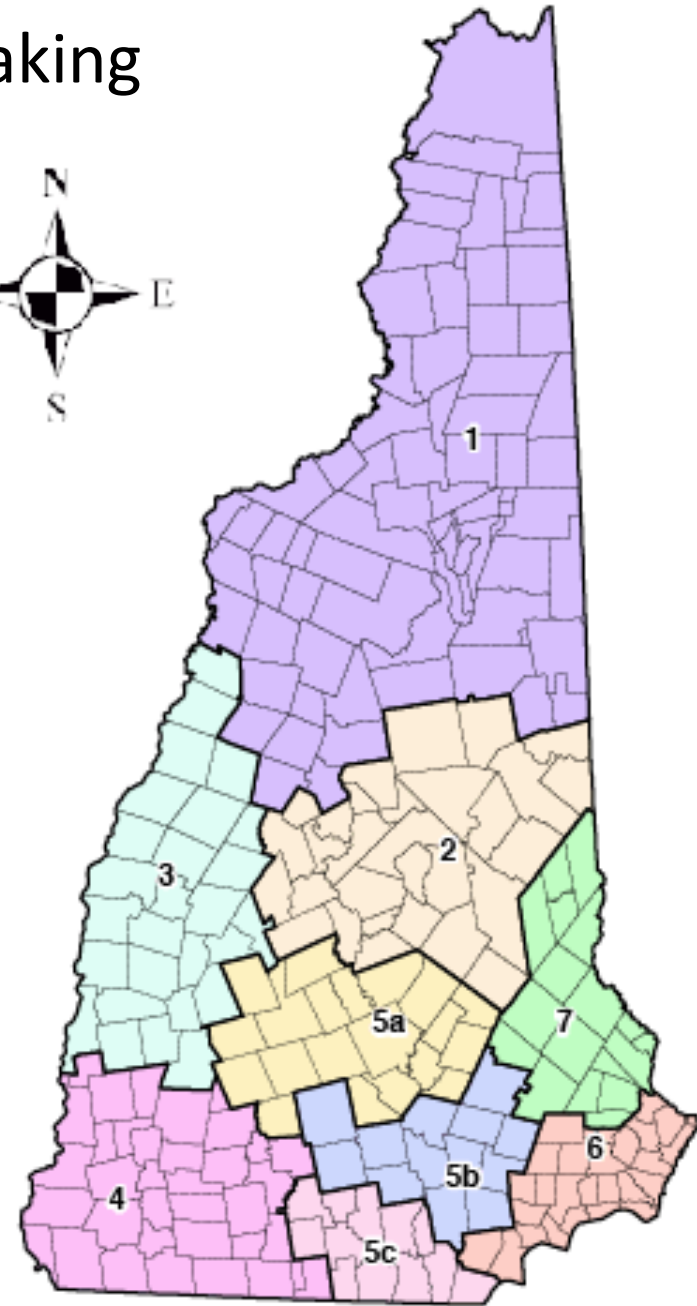


Image: NH Association of Regional Planning Commissions

Methods

Qualitative methods:

- semi-structured interviews
- GIS maps as “visual probes”
- content analysis using Nvivo software

Grounded Theory analytical approach:

- set of strategies for data collection and analysis
 - creative, rigorous, highly systematic
- coding, and line by line analysis of interview data

** best used for in-depth, case studies which aim to understand socially complex phenomena... this *constructivist, reflexive approach builds a theory* **grounded in the inductive analysis of empirical data**

*...description of the social landscape of land use
decision making in this case study*

- 1) Describe a theoretical framework** based on the social landscape
- 2) Identify components** which can support a watershed approach
- 3) Explore the understanding, communication network, cooperation potential and limitations** within this watershed

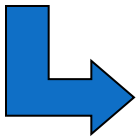
Semi-Structured Interviews

Research Question:

Is there a potential for watershed-based land use decision making, and how can this be determined?

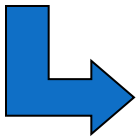
Units of Analysis

Watershed communication and connections
Information gathering
Policy



Thematic Questions:

- *How is the communication characterized between communities and groups within the watershed?*



Interview Questions:

- *Describe the circumstances under which you might approach upstream or downstream towns regarding land use.*

Data Collection

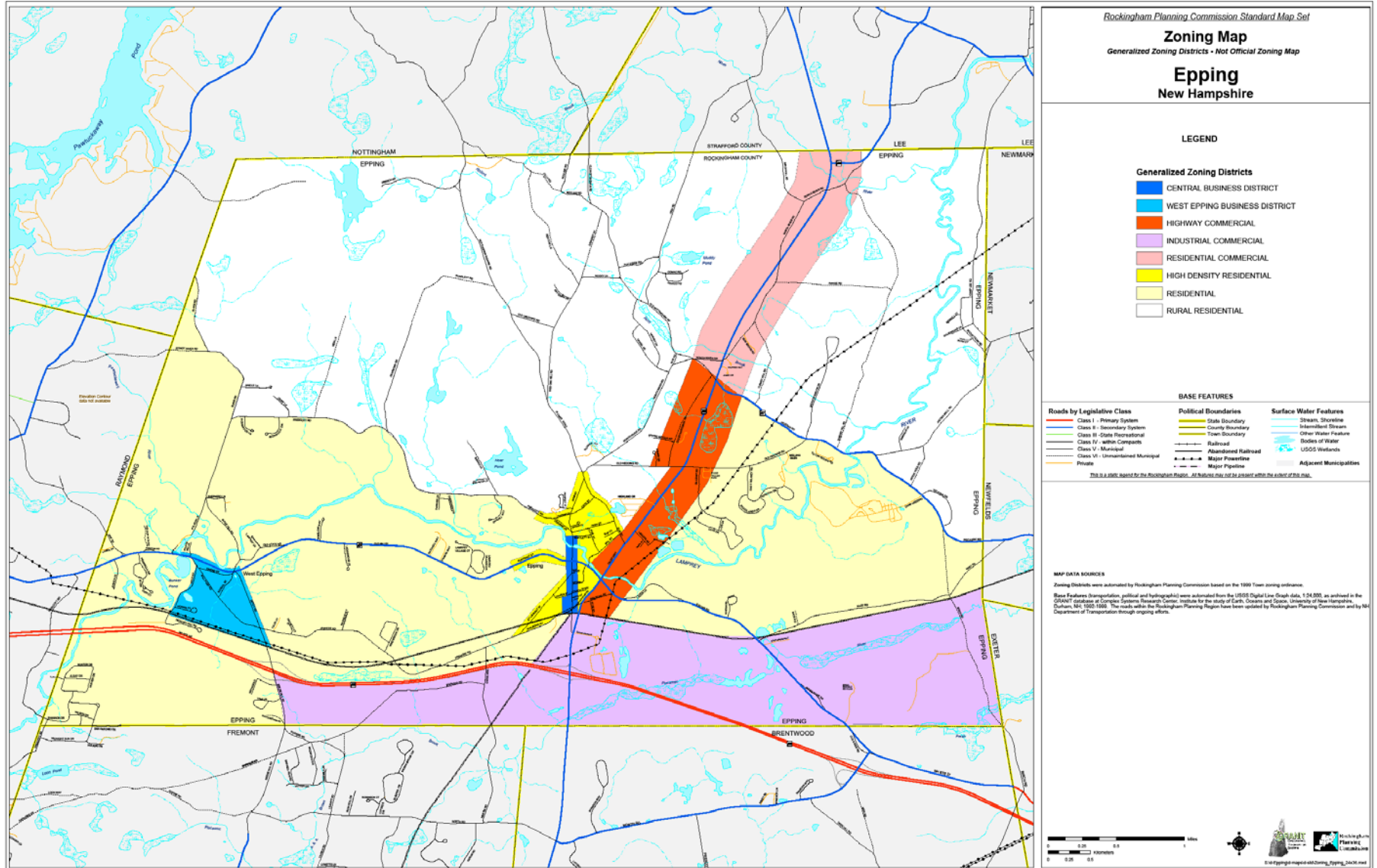
Expert Interviews

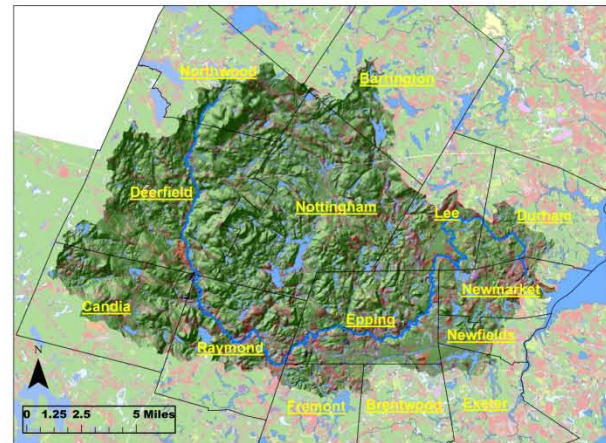
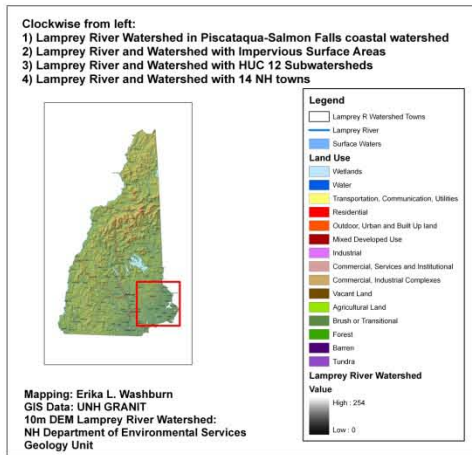
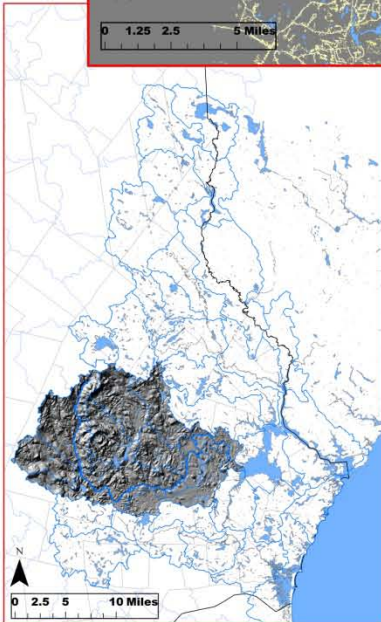
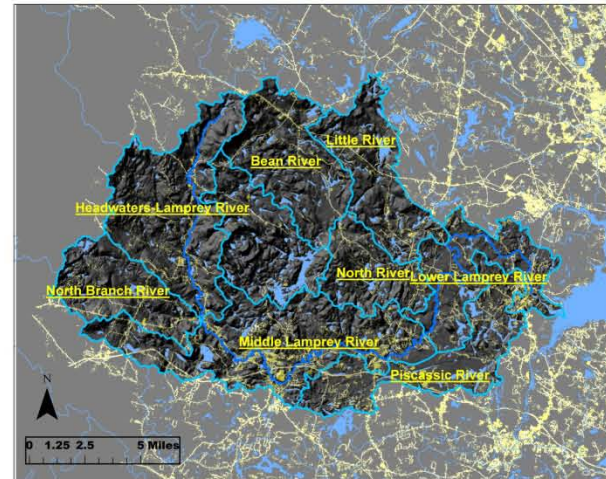
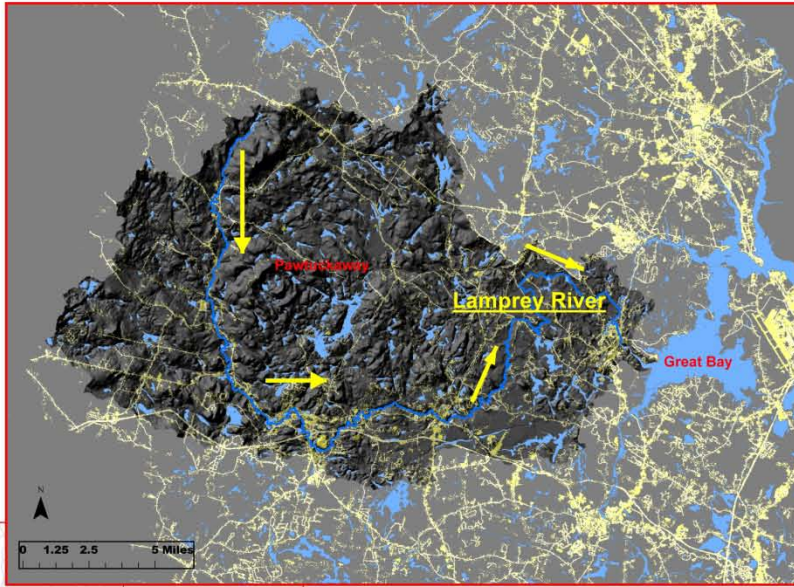
- NOAA, EPA, Regional Planning Commissions, Lamprey River Watershed Association, developers, realtors, NGOs, etc.

Primary Sources - Town Boards and Commissions

- Planning Boards
- Conservation Commissions
- Zoning Boards
- Open Space Commissions
- Heritage Commissions / *Historical Societies / Historic District Commissions*

Traditional Planning Maps





10M DEM courtesy of New Hampshire Geological Survey

Images: Washburn

Data Collection

Primary Interviews: 33

Secondary (expert) Interviews: 37

- Professional planners, NGOs, County, State, Federal, Higher Ed, developers, realtors
-

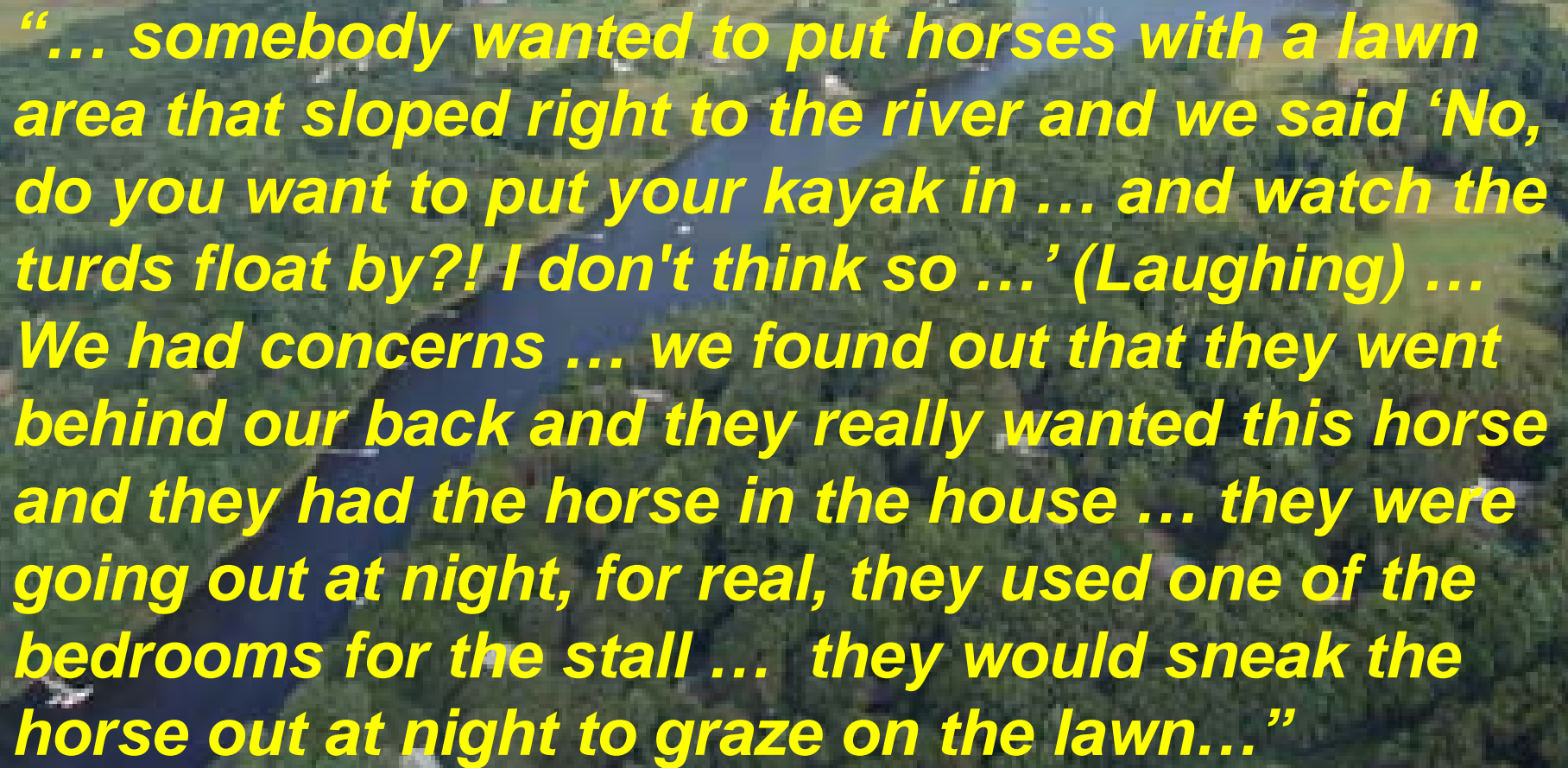
Primary Interviewees:

- Approx. 60 hours primary data
- Ave. interview 1 hour 47 minutes (up to 4 hours)
- Approx. 400 single spaced pgs

- **401 years** in town board/commission/ leadership experience
- **Women: 12; Men: 21**
- **NH Native: 6; Town Native: 2**

- Town Council / Selectboard experience: 5
- River advisory committee experience: 2
- Multiple boards and commissions: 18

17 months
43 public meetings
70 interviews
4,282 miles

An aerial photograph of a large body of water, likely a river or lake, with several green islands and peninsulas. The water is a deep blue, and the surrounding land is lush green. The sky is light blue with some white clouds. The text is overlaid on the lower half of the image.

“... somebody wanted to put horses with a lawn area that sloped right to the river and we said ‘No, do you want to put your kayak in ... and watch the turds float by?! I don't think so ...’ (Laughing) ... We had concerns ... we found out that they went behind our back and they really wanted this horse and they had the horse in the house ... they were going out at night, for real, they used one of the bedrooms for the stall ... they would sneak the horse out at night to graze on the lawn...”

Coding

Bashing the Planning Board

Stating responsibility
Questioning process
Communicating between boards

...so this Planning Board guy rips into this gung ho Conservation Commission member saying "it's your responsibility to be out and monitoring and reporting on this and that's not our responsibility!" ... I told him subsequently that I didn't care for that kind of approach and it's people like him that scare off eager volunteers, where the hell did he get off talking to my people like that?

Standing up for other members
Expressing disapproval

Scaring away volunteers
Venting anger

select Board had not
 were not remotely i
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would grumble abo
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 came over, so this fa
(draws on map) and
 maybe 10% increase
 '94 or five and this o
 space protection

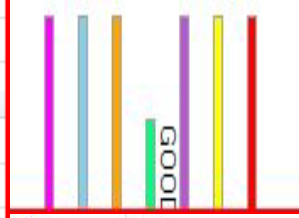
Reference 2 - 2.78% Coverage

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 chair she served as a conse
 of the planning board at the

Tree Nodes

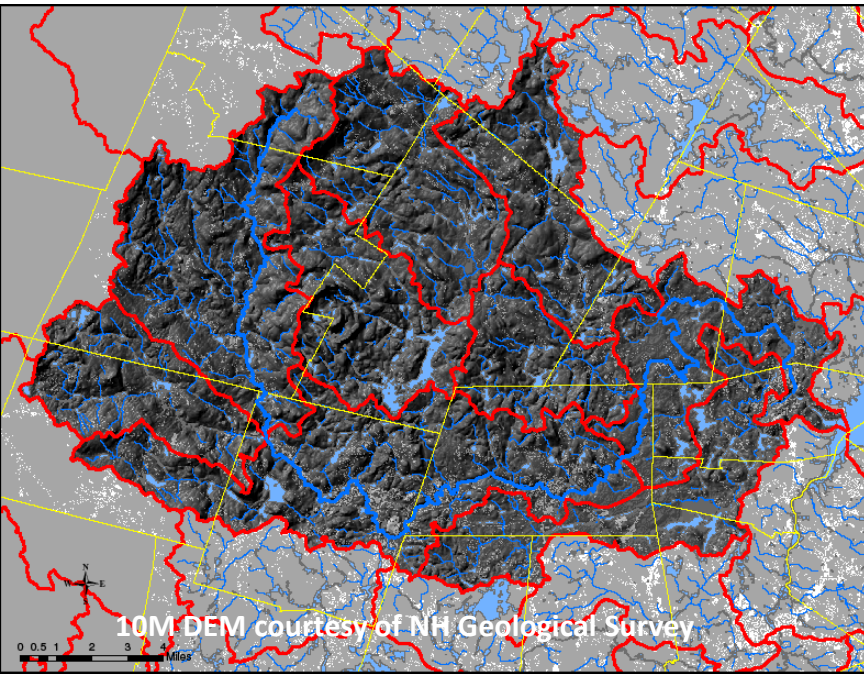
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Venting frustrations
 Communicating BETWEEN BOARDS in town
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 Bashing the PB
 Communicating BETWEEN BOARDS in town
 Codina, Dennis



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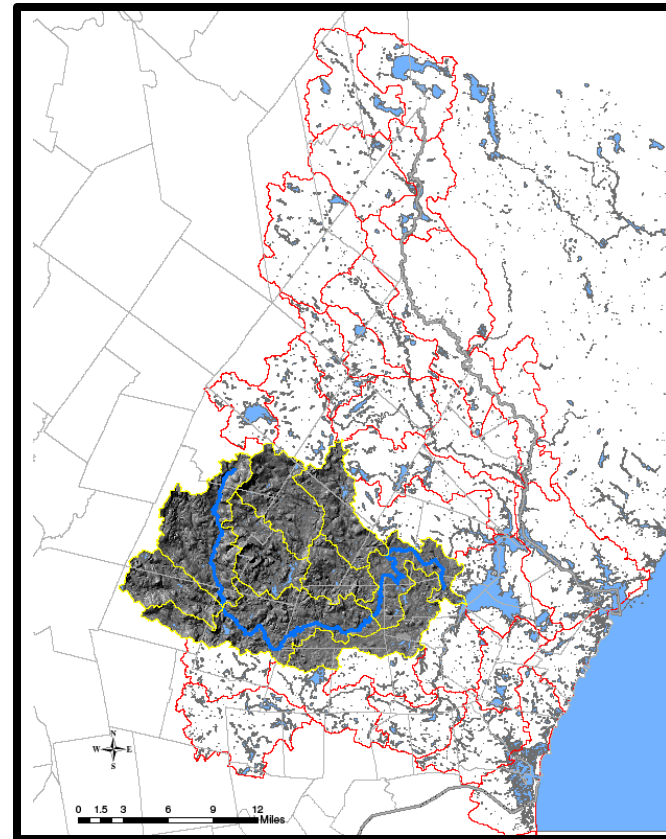
Results: Patterns in the Landscape of Decision Making



- Thinking about the impact of **cumulative** effects ...in the town, watershed, region?
- Recognizing **spatially** the relationship between towns and subwatersheds?

- **Communicating** upriver and downriver, between towns in the watershed?

- Considering **Great Bay**? The **coast**?



Spatial Awareness:

Lamprey River, Watersheds, Great Bay, Coast & Ocean

Never ... the coast? Great Bay? ... I don't know how that would ever influence.... I can't imagine it.... that might as well be 1000 miles away as far as the way we conduct ourselves here ...

- Overwhelmingly not considering Great Bay
- Never considering the coast or ocean
- Distance from coastline makes no clear difference

- **Struggling to understand ...**
 - Water systems, connections across the landscape
 - Watershed concept**
 - Science!!!!**

- **Raises awareness**
 - Closer public proximity / access to the river
 - Regional organizations**
 - History & heritage**

- Lacking in **leadership and collective vision** for “big picture”
- **Waiting for a crisis!!!!**

Community & Heritage:

The Public, Conflict, Democracy and Sense of Place

... one of the reasons we and our neighbors got involved in town politics and somebody asked me how do you get people to step up and volunteer for boards and my answer is always, you piss them off! (laughing)

- **Lacking**
 - Volunteers, Public Engagement, Leadership
 - Community expertise: *technical, scientific, legal, educational*
 - Knowledge of cultural landscape change over time
- **Concerns over....**
 - Loss of “Super-Volunteers”, Community Identity, Sense of Place
 - How to maintain “rural character”
 - Future of local democracy
- **Strong desire for balanced land use decisions**
- **Respect for tradition, practice of democracy, civic duty**
- **Enjoyment and pride of “giving back” to town**
- **Newcomers often challenge political inertia, status quo**
- **Newcomers & Established Residents – concern over future of water**

Communication: Within Towns, Between Towns... Or Not At All

To me I think all the board should be meeting jointly. I think that's the biggest problem in the town ... it's completely fractured, the boards operate in complete isolation from one another...the selectmen squabble amongst themselves... we don't have effective leadership.

Within Towns

- **Communication varies** ... none at all to excellent
- **Boards and commissions ... mistrust** one another
- Professional or full time town staff help!
- Concern over **loss of institutional memory**
- **Structure & process** of decision making hinder communication
- **Not integrating with heritage** groups

Between Towns

- **Regular communication is nonexistent:**
 - **Niche mentality** hinders communication
 - **Single issues** force communication, but conflict-ridden, mistrust
 - Unaware of **counterparts** in neighboring towns
 - **Reliance on experts** and regional groups
- **Growing concern** - water issues & economics > resource sharing??

Thinking Globally (?), Acting Locally:

Impervious Surfaces, Sprawl & Cumulative Impacts

There was a project that came up and I said 'that's an awful lot of pavement have you considered permeable asphalt?' And everybody looked at me and said 'really, that interesting' and then just went on with the same discussion ...

- Sprawl is ...
 - **Not clearly understood** (big box stores? California? Traffic?)
 - **Broadly associated with loss of community's soul & rural character**
- **Struggle between private property rights & context for the common good**
- Land use decision makers are...
 - **Not discussing cumulative effects** when making decisions
 - **Struggling to implement Smart Growth**
 - **Assuming a defensive posture** towards all development
 - **Recognizing a 'chipping away'** at wetlands and rural character
- **Recognition of the link between impervious surfaces and water quality**
 - **Mixed/poor understanding** the 10% (4-5%) tipping point

Theoretical Framework: Conceptual Categories

Gathering Community:

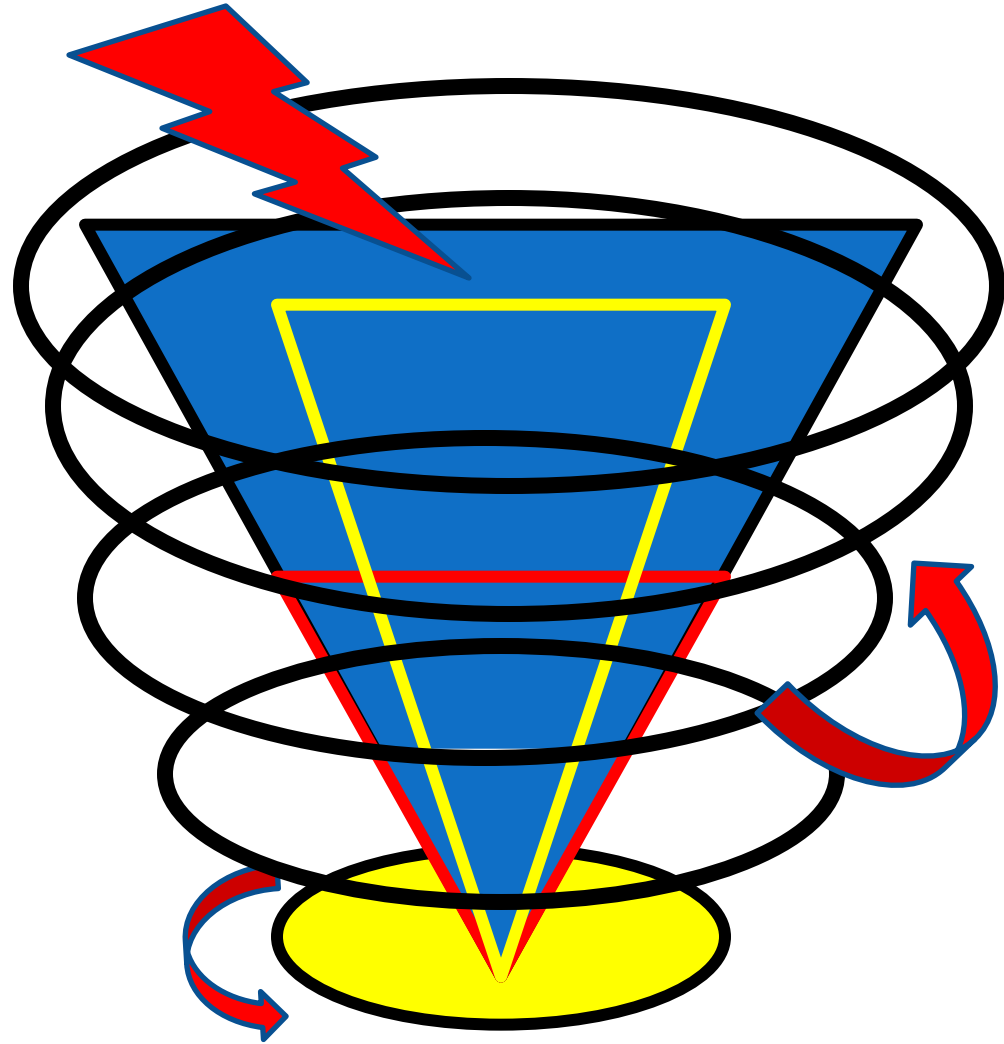
individual & group motivation, the evolution of a sense of community, & a tension surrounding conflict – all occurring at varying spatial scales.

Handling Conflict:

characteristics, actions & reactions, structures & processes that contribute to conflict, at multiple scales simultaneously.

Temporo-Spatially Scaling:

factors and forces that promote, encourage, hinder or impede the consideration of cumulative decisions & effects over space and time.



Is there a potential for watershed-based land use decision making?



- A defined land use planning context at an eco-regionally relevant level would help address many challenges identified in this case study.
- Re-engaging with heritage and re-building bioregional awareness that links communities to the waterways, the ecosystem and each other are important and necessary steps.

Reflections on Methodology

Successful:

- Mapping out the social landscape of land use decision making
- Identifying characteristics, challenges and opportunities for a watershed approach
- Producing a rich data set and theoretical framework which is comprehensive, complete, fully saturated and well grounded in the data
- Adding a new dimension to studying issues in coastal management and policy

Further Research and Transferability

- Qualitative and grounded theory case studies can never be truly replicated in the hypothetico-deductive model (limited to only describing this specific case), but they provide a different route towards that model
- Using hypotheses concerning the conceptual categories to test relationships and ideas with this or other data sets.
- Using the theoretical framework generated to develop hypotheses for subsequent qualitative or quantitative research.
- **The theoretical framework and the methodology can be replicated in other watersheds which currently lack a watershed based land use decision-making approach, but where assessing the potential for this development is valuable.**

LAMPREY RIVER
WATERSHED

OUTREACH

A collaboration of the
following organizations



Action Research & New Collaborative Efforts

- **Momentum building**
 - **Interviews = Outreach/Education > Action Research**
 - **NOAA Social Science Fellowship: outreach, CTP**
 - **Funding**
 - **Conference planning ... in under 3 months**
-
- **Conference Structure:**
 1. Keynote - Community-Based EBM (C. Feurt)
 2. Decision Making Challenges, Opportunities (Washburn)
 3. Water Quality Research: Road Salt and Nitrogen (NHWRRC)
 4. Consistency of Environmental Planning & Regulations (PREP-EPA)
 5. **Discussion sessions:**



Discussion Sessions

Communication –

Within towns varies ... but between towns is virtually nonexistent, which can lead to conflict and lack of opportunity to develop regional awareness.

Community –

Characterized by volunteerism decline, loss of town identity, lack of public involvement and a concern over loss of “rural character” and heritage.

Water concerns –

Quality and quantity, but also a lack of understanding of water systems, of spatial awareness, of the watershed concept, and of connections to the coast.

LAMPREY RIVER WATERSHED

OUTREACH

A collaboration of the
following organizations



Your Water, Your Wallet, Your Watershed –
Why Working Together Across Town Boundaries
Makes \$ense For Protecting Our Water
13 June, Nottingham Town Hall
139 Stage Rd. (Rte 152)



Image: Steve Miller, GBNERR CTP

June 13, 2009
Nottingham NH Town Hall



78 Participants
Old School Gymnasium
8 Hours
Only Sunny Saturday in June

Key Lessons

Social science techniques are valuable tools for coastal and marine science, management and policy

- Embed Research in Communities
- Translate Science with Visuals
- Listen to and Share Common Stories
- Invite New Thoughts on Community
- Draw Strength from Shared Values
- Focus on Water as Community Concern



Image: Steve Miller, GBNERR CTP