Instructor Slide Materials
Navigating Coastal Decision-Making:
Using shellfish aquaculture as a model for socio-ecological knowledge development

For SESYNC S-E Synthesis Case Study teaching module – Williams, Wenczel, Tavares
Concept Mapping
Stakeholder Brainstorm/Listing (example)

- RESEARCH
  - Dept. of Health
  - Dept. of Environmental Protection/Natural Resources
  - US Fish and Wildlife Service

- LOCAL CHEFS
  - US Army Corps of Engineers

- RECREATIONAL FISHING
  - National Oceanic and Atmospheric Administration (NOAA)

- CRABBING
  - Aquaculture Associations

- SHELLFISH AQUACULTURE

- GROWERS
  - Dept. of Agriculture

- COMMERCIAL FISHING

- COASTAL PROPERTY OWNERS

- Bird/Conservation NGO
Sample Maps: These concept maps are intended to provide samples of the types of products you might see in class. These are not considered answer keys. This map was created by case-study authors as an initial brainstorming exercise.
As an example, the map below was created by undergraduate students (mixed class years) following a discussion of coupled human-natural systems (after they had read and briefly discussed Liu et al 2014). They were asked to brainstorm oyster aquaculture as a coupled human natural system and had no prior in-class discussion of estuaries or oyster aquaculture.
Concept Mapping – Homework Mod
Topic Concept Map; HW C2 Modification

Example Estuary
Legend

• Items in **Blue** = Biology/Ecology
• Items in **Orange** = Sociology
• Items in **Green** = Management (intersection of the two disciplines)
Negotiation Slides
See http://www.sesync.org/for-you/educator/case-study-collection for full case

Suggested readings (or similar)

Interests vs positions – brainstorming exercise (Example):
  Homeowner position – no apartment complex next door
  Developer position – build an apartment
  Homeowner interests – no noise, no change to traffic, no impact to view
  Developer interests – be a good neighbor, create green spaces to recreate, be environmentally friendly
  Position based negotiation = win or lose
  Interest based negotiation = smaller building with bike share hub and green space between building and neighboring houses.
A stakeholder assessment is a tool to explore interests of multiple parties and seek out areas of possible common interest to seek solutions.

It is at times referred to as stakeholder analysis or stakeholder mapping, but each has slight different meaning in different fields (used in conflict/negotiation, project mapping, business management). Our focus here is on the use in conflict/disputes and seeking creative solutions, in the other settings it’s also used to map out level of impact and control over different outcomes.

In our context, it’s typically conducted for a specific dispute, conflict, or community issue (i.e. a developer has proposed a new apartment complex that is meeting resistance from neighbors and local environmental groups).

Stakeholders are listed and could include town managers, neighbors, the developer, etc; issues are listed and could include noise, environmental impact, traffic, cost, etc. The cells are filled in with the “interests” of the stakeholders relative to each issue.

Stakeholder assessments are typically done by interviewing parties, but can also be done in a group setting at a meeting, or by an individual to prepare.

It is not limited to a set number of stakeholders or issues.
### Stakeholder Assessment (2)

<table>
<thead>
<tr>
<th>Stakeholder / Issues</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grower / Aquaculturist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal Property Owner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservation/Eco. NGO Rep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Chef</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gov’t Decision maker</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BLANK FOR USE IN CLASS – OR DRAW ONE ON THE BOARD
Sample filled in for case – this is not intended to be the “correct” table, it will depend on what the class brainstorms.

<table>
<thead>
<tr>
<th>Stakeholder/Issue</th>
<th>Compliance</th>
<th>Endangered species</th>
<th>Economy</th>
<th>Outdoor Recreation</th>
<th>Water Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner/Aquaculturist</td>
<td>Follow rules from agency</td>
<td>Avoid impact</td>
<td>Maintain job</td>
<td>Time on water at work</td>
<td>Clean water for oysters</td>
</tr>
<tr>
<td>Coastal Property Owner</td>
<td>Not concerned</td>
<td>Want to see species thrive</td>
<td>Want property value to inc</td>
<td>Views and access to boat</td>
<td>Clean water to swim</td>
</tr>
<tr>
<td>Conservation/Env. NGO Rep</td>
<td>Comply with ESA</td>
<td>Want to see species thrive</td>
<td>Want people to donate</td>
<td>Access to birdwatch</td>
<td>Clean water for birds</td>
</tr>
<tr>
<td>Local Chef</td>
<td>Comply with health standards</td>
<td>Avoid impact (PE angle)</td>
<td>Want people to eat out</td>
<td>Not concerned</td>
<td>Clean water for oysters</td>
</tr>
<tr>
<td>Gov’t Decision maker</td>
<td>Comply with fed and state laws and reg</td>
<td>Protect as required under ESA</td>
<td>Strong tax base to fund work</td>
<td>Maintain access</td>
<td>Clean water per CWA</td>
</tr>
</tbody>
</table>
This sample was created by Lindsey Williams, Natalie Kashi, Allison Enck, and Lucian Pizzano for a UNH class project exploring water quality in Great Bay, NH. It included many other sectors, just two are shown here.
- Two aspects of negotiation – topic and process
- Method to “Judge” negotiation
  - Produce a “wise” agreement (if agreement is possible)
    - Meets legitimate interests
    - Resolves conflicting interests fairly
    - Is durable
    - Takes community interests into account
  - Be efficient
  - Improve or at least not damage relationships
- Positional bargaining – hard versus soft
Optional Photos to Use in Course
Intertidal rack-and-bag culture of oysters along Cape Shore region of New Jersey

Photo credit:
Oyster farm in NH, racks lifted for cleaning. Photo credit Lindsey C. Williams
Cleaning bags of oysters at an oyster farm in NH. Photo credit Lindsey C. Williams
Oyster farm in NH (cages at low tide as seen from shore). Photo credit Lindsey C. Williams.