

# Characterizing social disruption from oil spills and spill response

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# Oil spill contingency planning



# Project goals

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To help contingency planners systematically think through:

- What are socially disruptive effects of spills?
  - What qualities of a community, sector, etc. exacerbate or mitigate effects (i.e., vulnerability)?
  - What management interventions can address them?
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# Approach

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## Phase I: Who is affected and how?

- Literature review about
  - Spill impacts
  - Vulnerabilities to impacts
  - Other technological disasters
- Case studies
  - Buzzards Bay, MA (Bouchard-120)
  - Gulf Coast / Mississippi River (DM-932)
  - Long Island Sound, CT and NY

## Phase II: Assessment of resources

- Existing tools and databases
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# Phase I

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who is affected ?

how are they affected ?

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# Who is affected?

1. Individuals

2. Social groups

3. Economic entities

4. Governmental entities

# Who is affected?

## 1. Individuals

- cleanup workers
- residents
- general public
- Commercial fishermen
- subsistence fishers and gatherers
- others

## 2. Social groups

- formal associations
- households/families
- ethnic groups
- community
- other

## 3. Economic entities

- tourism industry
- commercial fishing
- other industry
- retail businesses
- oil sector
- other economic sector

## 4. Governmental entities

- local government
- state government
- federal government

## 5. Tribes

# What kinds of effects are there?

1. Health	2. Social	3. Cultural
4. Economic	5. Use of environment	6. Political and legal



# What kinds of effects are there?

<p>1. Health</p> <ul style="list-style-type: none"><li>• acute physical health</li><li>• injuries</li><li>• mental trauma</li></ul>	<p>2. Social</p> <ul style="list-style-type: none"><li>• quality of relations</li><li>• loss of relationships</li><li>• stigmatization</li></ul>	<p>3. Cultural</p> <ul style="list-style-type: none"><li>• interruption of traditional activities</li><li>• damage to cultural sites.</li></ul>
<p>4. Economic</p> <ul style="list-style-type: none"><li>• disruption of normal economic activities</li><li>• change in income</li><li>• damage to tangible property</li></ul>	<p>5. Use of environment</p> <ul style="list-style-type: none"><li>• loss of recreational opportunity</li><li>• impaired experience</li></ul>	<p>6. Political and legal</p> <ul style="list-style-type: none"><li>• trust in government</li><li>• preparedness of responders</li><li>• change in law and regulation</li></ul>

# Database of effects

columns of affected entities

	Workers	Residents	Tourism-related business	Government agency staff
Health				
Social				
Cultural				
Economic				
Use of environment				
Political and legal				

rows of types of effects

# Vulnerability

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Two communities experiencing a similar oil spill may experience very different effects

- What makes a community more sensitive to stresses?
- What responses can be taken to reduce effects of stress?

Can speak about vulnerability to individuals, households, groups, businesses, social networks, economic sectors, etc.

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# Extending the database

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- effects
  - sensitivities
  - responses of those affected
  - management responses
  - details
    - data sources
    - databases
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# Economic effect: Industry

Effect	Description	Industry, Shipping companies
Ship movement interrupted	Ships cannot transit due to oiled water	Industrial feedstock not delivered, production and employment may be affected <u>Sensitivity</u>

# Sensitivity to economic effect

Effect	Description	Industry, Shipping companies
Ship movement interrupted	Ships cannot transit due to oiled water	<p>On-site storage supply of feedstock.</p> <p>Material/product sensitive to delays?</p> <p>Ability to switch to other production cycle.</p> <p><a href="#">Responses</a></p>

# Responses to economic effect

Effect	Description	Industry, Shipping companies
Ship movement interrupted	Ships cannot transit due to oiled water	Arrange for alternative delivery mode (off-load at different port).  Allow movement, set up cleaning stations

# Economic effect: Local businesses

Effect	Description	Downtown retail businesses
Ship movement interrupted	Ships cannot transit due to oiled water	Cruise ships do not make scheduled port of call <u>Sensitivity</u>



# Sensitivity to economic effect

Effect	Description	Downtown retail businesses
Ship movement interrupted	Ships cannot transit due to oiled water	Dependence on tourism revenue stream  Difficult to reschedule  Seasonality <u>Responses</u>

# Responses to economic effect

Effect	Description	Downtown retail businesses
Ship movement interrupted	Ships cannot transit due to oiled water	Bus tourists in from alternative port.

# Health effect

Effect	Description	Subsistence fishers
Chronic physical health effect	Consumption of contaminated fish and shellfish causes organ damage and cancers.	Individuals cannot live normal lives and need medical treatment <a href="#">Details</a>

# Details on health effect

Effect	Description	Subsistence fishers
Chronic physical health effect	Consumption of contaminated fish and shellfish causes organ damage and cancers.	No data available.  Contact Prof. XXXXX, Department of Ethnography at University of YYYY. yyyy@university.edu

# Conclusions

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- Database of effects, sensitivities, responses can be adapted and tailored to each region.
  - Linked databases can be used in the contingency planning process to *systematically* consider socially disruptive effects.
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