A Risk Governance Issue:
Common Standards
Basic Elements of Risk

- Risk Understanding
  - What can go wrong?
  - How likely is it?
  - What are the impacts?

Scenario

Risk Likelihood & Consequence
Incidents

- Grounding
- Collision/Allision
- Flooding/sinking
- Fire/explosion
- Personal injury/illness
- Oil spills
- Discharge of debris/sewage
- Accidental Release of HAZMAT
- Species damaged by marine operations
- Invasive species introduction
- U.S. EEZ encroachment
- Fish stock non-sustainability
- Global IUU Fishing

- Drug smuggling
- Illegal migrant entry
- Seasonal conditions affecting waterways
- Failure to Support Combatant Commander
- Failure to Provide Polar Region Presence
- Periodic/expected natural disaster
- Non-maritime incident affecting a waterway
- Attack on Port Infrastructure
- Transfer of WMD
- Transfer of Terrorist
- Failure to Provide International Disaster Support
Communities

• Vessels
  o Commercial Fishing Vessel
  o Freight Barge
  o Freight Ship
  o Industrial Vessel
  o Offshore Supply Vessel
  o Passenger (6 or Fewer)
  o Passenger (More Than 6)
  o Public Tankship/Barge
  o Public Vessel, Unclassified
  o Recreational
  o Research Vessel
  o School Ship
  o Tank Barge
  o Tank Ship
  o Towing Vessel

• Facilities
  o Deepwater Port
  o Fixed Platform
  o Marina
  o Unregulated Facility
  o MARPOL Reception
  o Waterfront Facility
Likelihood

- Range of frequency categories capture how often a loss (adverse event) occurs
- Several potential outcomes for the same incident

<table>
<thead>
<tr>
<th>Frequency Score Descriptions</th>
<th>Frequency Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous</td>
<td>730 events per year</td>
</tr>
<tr>
<td>Daily</td>
<td>365 events per year</td>
</tr>
<tr>
<td>Weekly</td>
<td>52 events per year</td>
</tr>
<tr>
<td>Monthly</td>
<td>12 events per year</td>
</tr>
<tr>
<td>Quarterly</td>
<td>4 events per year</td>
</tr>
<tr>
<td>Annually</td>
<td>1 event per year</td>
</tr>
<tr>
<td>Decade</td>
<td>1 event per 10 years</td>
</tr>
<tr>
<td>Half-century</td>
<td>1 event per 50 years</td>
</tr>
<tr>
<td>Century</td>
<td>1 event per 100 years</td>
</tr>
<tr>
<td>Millennium</td>
<td>1 event per 1,000 years</td>
</tr>
</tbody>
</table>
### Standard Consequence Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Deaths &amp; Injuries</th>
<th>Economic Impact</th>
<th>Environmental Impact</th>
<th>National Defense</th>
<th>Symbolic Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>&gt;1000 Deaths or Serious Injuries</td>
<td>&gt; $1 Billion</td>
<td>Complete destruction of Ecosystem over large area</td>
<td>Creates critical long-term vulnerabilities to defense</td>
<td>Destruction of unique America icon(s)</td>
</tr>
<tr>
<td>4</td>
<td>101-1000 Deaths or Serious Injuries</td>
<td>$101 Million - $1 Billion</td>
<td>Complete destruction of Ecosystem in small area</td>
<td>Creates critical, short-term defense vulnerabilities</td>
<td>Destruction of important, internationally known, American symbols</td>
</tr>
<tr>
<td>3</td>
<td>11-100 Deaths or Serious Injuries</td>
<td>$11-$100 Million</td>
<td>Long-term damage to a portion of the Ecosystem</td>
<td>Long-term disruptions to military actions</td>
<td>Major damage to, but not destruction of, nationally important, symbols</td>
</tr>
<tr>
<td>2</td>
<td>1-10 Deaths or Serious Injuries</td>
<td>$1-$10 Million</td>
<td>Short-Term, Serious damage to the Ecosystem</td>
<td>Short-term disruptions to military actions</td>
<td>Major damage to or destruction of regionally important symbols</td>
</tr>
<tr>
<td>1</td>
<td>No deaths, Only minor injuries</td>
<td>&lt;$1 Million</td>
<td>Minimal, Local Impact to Ecosystem</td>
<td>No serious military or defense impact</td>
<td>Major damage to or Destruction of locally important symbols</td>
</tr>
</tbody>
</table>
What’s a life worth?

1. No National Standard
   - DOT - $3.0 Million
   - EPA - $9.1 Million
   - FDA - $7.9 Million
   - DHS - $6.3 Million

2. Politically “Loaded” Value Question

3. But ... necessary to calculate and compare “apples to apples”

4. Common measure is $$$$$
Other Necessary Standards

• Threat
• Vulnerability
• Resilience
Questions?