

Desperately Seeking Resiliency: A Coast Guard Perspective

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August 26, 2014



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Resilience, its a Bow Tie Thing.



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Resilience, it's a Bow Tie Thing.

(and Bow Ties are cool)



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Bow Tie Risk Model– an overview*

- Bow ties evolved out of the “Swiss cheese” Causality model.
- There is a point between “Cause” and “Consequences” where you lose control. This is the “Knot”.
- Up to the “knot” any “barriers” are there to stop you losing control – they are a measure of the **Vulnerability** of the system.
- After the knot there are the outcomes of the control loss. Any barriers here are to avoid/reduce the consequences. Their effectiveness is then a measure of the **Resilience** of the system.
- It gives especially non technical people a feel for where their performance or otherwise affects a particular barrier and the purpose of resilience barriers which are not necessarily redundant.

**David Slater - Cardiff University, October 19th 2011,*



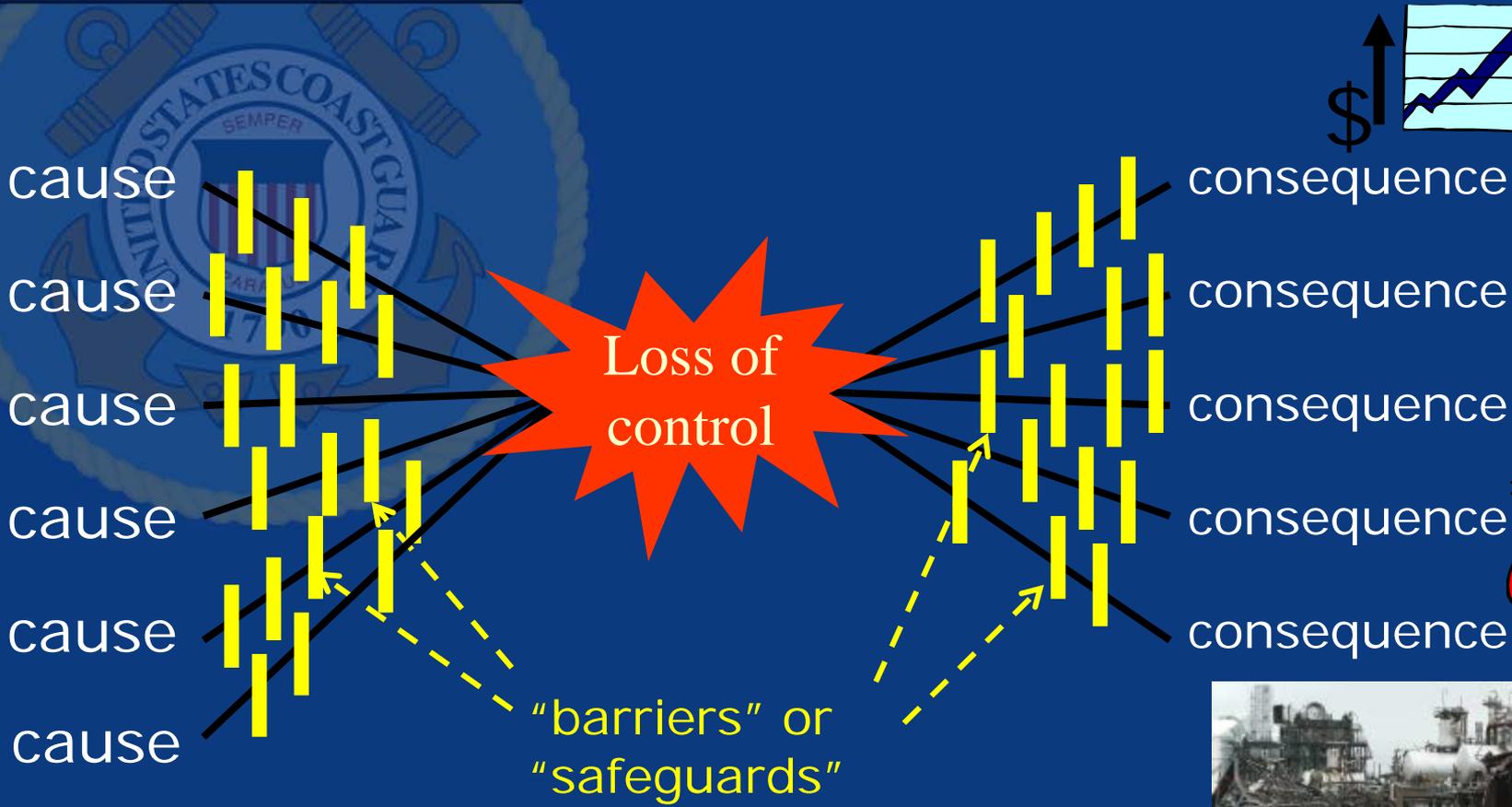
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A picture of how a hazard is managed*



**David Slater - Cardiff University, October 19th 2011,*



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A picture of how a hazard is managed*

A logical (and useful) definition of **"Vulnerability"** then follows as - **"The Propensity to loss of control"**

cause
cause
cause
cause
cause
cause
cause



consequence
consequence
consequence
consequence
consequence
consequence



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A picture of how a hazard is managed*

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cause
cause
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consequence
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And similarly **"Resilience"** is **"The Effectiveness and depth of defences, once control is lost"**



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Resilience in Coast Guard Activities

The U.S. Coast Guard promotes port recovery and resilience through a variety of steady state and contingency activities. These include:

- Establishing and enforcing emergency equipment, training, and procedure requirements for commercial vessels and waterfront facilities
- Establishing and enforcing security focused requirements for vessels and facilities
- Conducting Search and Rescue Operations
- Conducting Pollution Response Operations
- Establishing/maintaining aids to navigation
- Operating Vessel Traffic Services

The Coast Guard leads and supports partnership organizations dedicated to preparing for response and recovery operations. These include:

- Harbor Safety Committee (general navigation safety)
- Area Committee (pollution response)
- Area Maritime Security Committee (security incidents)



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Resilience in Coast Guard Activities

- The Coast Guard requires Area Maritime Security Committees to plan and prepare for recovery operations, including a salvage response plan for each AMSP.
 - As with other contingency plans, the Coast Guard requires that these plans be exercised on a regular basis.
 - During an incident, Coast Guard led Maritime Transportation System Recovery Units, which include private companies and public agency members, plan, prioritize, and direct recovery operations.
- The Coast Guard also participates and supports long term planning to improve resilience through technical support for FEMA FEMA-administered port security grants, through participation in revisions to the NRF, major exercises, lessons learned, etc.
- At the national level, the Customs and Border Protection/U.S. Coast Guard Protocols for the Expedious for the Expedious Resumption of Trade include carrier and trade support groups that provide insight with respect to post-incident recovery issues.



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Resilience in Coast Guard Activities

- For both long term and contingency planning, we make use of information from other DHS sources
 - the Office of Cyber and Infrastructure Analysis (OCIA) (formerly known as Homeland Infrastructure Threat and Risk Analysis Center (HITRAC),
 - Department of Transportation and its components, with respect to these relationships and cascading effects.
- Internationally, the Coast Guard has also been on the forefront in pushing resiliency efforts with its maritime partners.
 - worked with the IMO to develop voluntary guidelines for members to implement Measures toward enhancing maritime trade recovery related to the global supply chain system and maritime conveyances
 - Worked with the Canadian Government to strengthen cross border resiliency/recovery agreements through the Beyond the Border initiative.



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Improving awareness

- The Coast Guard's contribution to port resilience is through the performance of Coast Guard missions and activities which help develop awareness and understanding of port-wide resiliency issues within the context and scope of our roles and responsibilities.
- Various port-level official and industry committees and organizations, such as Harbor Safety Committees, Area Committees, Area Maritime Security Committees, Port Readiness Committees, and MTS Recovery Units provide continuing opportunities for coordination and collaboration.
- The Coast Guard also facilitates technical support by Area Maritime Security Committees through the cognizant Captain of the Port for FEMA-administered port security grants.



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