RISK ASSESSMENT PROJECT

Recommendating an Optimal Response System for the Aleutian Islands:

Summary Report

July 2014
• 2004 M/V Selendang Ayu
• 2008 National Academies Report
  – Stakeholder, Quantitative, Academic Elements
• 2009 Risk Assessment Begun
• 2011 End of Phase A
• 2012 Phase B begins
• 2014 Recommendations
PHASE A RECOMMENDATION

- Enhance Vessel Monitoring and Reporting
- Increase Rescue Tug Capability
- Increase Salvage and Spill Response Capability
Goal: Prevent/minimize future environmental harm to the people and natural resources of the Aleutians Subarea by developing an integrated response system that will:
• Provide an optimum set of response services
• Be congruent with State/Federal regulations
• Be cost effective
• Be feasible and practical
• Supported and accepted by marine industry
• Consider *actual* conditions, not those specified in federal regulations

• Leverage existing resources as much as possible

• Consider cost differences as compared to Lower 48, esp. as related to salvage costs
• Vessels avoid region to avoid costs
• Vessels transfer to innocent passage status by a port call in Canada to avoid costs
• Cost borne by residents in region due to only local vessels being charged
• Regulatory Requirements
• Environmental Conditions
• Response Gap Analysis
• 2012 Vessel Traffic Update
• Minimum Tug Requirements
• Tugs of Opportunity
• Best Available Technology Tug
SUPPORTING REPORTS

- Purpose Built Tug
- Tug Location Study
- Options for Management and Funding
- Options for Salvage and Spill Response
- Benefit Cost Analysis
2012 Vessel Traffic

Unimak Pass, 2012 Traffic

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique Vessels</td>
<td></td>
</tr>
<tr>
<td>Innocent Passage</td>
<td>44%</td>
</tr>
<tr>
<td>VRP Required</td>
<td>53%</td>
</tr>
<tr>
<td>3% Unknown</td>
<td></td>
</tr>
<tr>
<td>All Transits by Type</td>
<td></td>
</tr>
<tr>
<td>Tankers - 3%</td>
<td></td>
</tr>
<tr>
<td>Other - 13%</td>
<td></td>
</tr>
<tr>
<td>Container - 24%</td>
<td></td>
</tr>
<tr>
<td>Bulk Cargo - 60%</td>
<td></td>
</tr>
<tr>
<td>3% Unknown</td>
<td></td>
</tr>
<tr>
<td>All Transits by Direction</td>
<td></td>
</tr>
<tr>
<td>WESTBOUND</td>
<td>3,109 Transits</td>
</tr>
<tr>
<td>67%</td>
<td></td>
</tr>
<tr>
<td>EASTBOUND</td>
<td>1,369 Transits</td>
</tr>
<tr>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>3% Unknown</td>
<td></td>
</tr>
</tbody>
</table>
2012 VESSEL TRAFFIC

- 4,616 Transits
  - 2,016 Subject to VRP
  - 2,462 Innocent Passage

- 1,961 Ships
  - 1,045 Subject to VRP
  - 854 Innocent Passage Only
RESPONSE GAP

• Challenging Operating Environment
  – Strong Winds
  – Large Seas
  – Low Ceilings
  – Frequent Fog
<table>
<thead>
<tr>
<th>RESPONSE TACTIC</th>
<th>Response Not Possible</th>
<th>Response May be Possible</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Towing</td>
<td>2%</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>Helicopter Lightering</td>
<td>20%</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>Open-Water Mechanical Recovery</td>
<td>72%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Nearshore Mechanical Recovery -- Unalaska Bay</td>
<td>52%</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>(Daytime only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerial Application of Dispersants</td>
<td>72%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Vessel Application of Dispersants</td>
<td>64%</td>
<td>36%</td>
<td></td>
</tr>
<tr>
<td>Air Observations -- Fixed Wing (Daytime only)</td>
<td>18%</td>
<td>82%</td>
<td></td>
</tr>
</tbody>
</table>
RECOMMENDED RESPONSE SYSTEM

- Managing Entity
- Routing Measures and Vessel Monitoring
- Emergency Towing
- Salvage and Spill Response
• Single managing entity
  – Focal point
  – Strategic management
  – Cost effective

• Non-profit organization
  – Transparency
  – Managed by members
  – Opportunities for funding
ROUTING MEASURES AND VESSEL MONITORING

Atuu Island

Buldir Island
ROUTING MEASURES AND VESSEL MONITORING
ROUTING MEASURES AND VESSEL MONITORING
ROUTING MEASURES AND VESSEL MONITORING
• Tug of Opportunity
• Best Available Technology Tug
• Purpose Built Tug
• Tug Location
BEST AVAILABLE TECHNOLOGY
TUG LOCATION
TUG LOCATION
• Oil Storage Barge
• Helicopter Lightering Package
• Heavy-Lift Helicopter of Opportunity
• Nearshore Spill Response Taskforce
• Fishing Vessel of Opportunity Program
• Marine Logistics Base
• Incident Management Team
• Out of Region Program
SALVAGE AND SPILL RESPONSE
SALVAGE AND SPILL RESPONSE
TYPICAL NEARSHORE TASK FORCE

- Free-oil Recovery Strike Teams (3)
- Shoreline Protection Strike Teams (2)
- Enhanced Recovery System
- Landing Craft
SALVAGE AND SPILL RESPONSE

Aerial Support

Command & Control

Berthing

Equipment/Supplies Storage & Transportation

Decontamination

Secondary Oil Storage & Waste Management
# Costs

<table>
<thead>
<tr>
<th>Service/Resource</th>
<th>Est. Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Managing Entity</strong></td>
<td></td>
</tr>
<tr>
<td>Staff and Overhead</td>
<td>$605,597</td>
</tr>
<tr>
<td>Professional Services (legal, tax, accounting)</td>
<td>120,000</td>
</tr>
<tr>
<td>Board of Directors</td>
<td>67,500</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$793,097</td>
</tr>
<tr>
<td><strong>Prevention &amp; Compliance</strong></td>
<td></td>
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<tr>
<td>AIS Equipment and Services</td>
<td>$433,097</td>
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<tr>
<td>Staff Monitoring of Vessel Traffic (using AIS)</td>
<td>88,728</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$521,826</td>
</tr>
<tr>
<td><strong>Emergency Towing</strong></td>
<td></td>
</tr>
<tr>
<td>Emergency Tow Vessel</td>
<td>6,752,053</td>
</tr>
<tr>
<td>Tow Vessel Management and Overhead</td>
<td>287,012</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$7,039,065</td>
</tr>
<tr>
<td><strong>Salvage</strong></td>
<td></td>
</tr>
<tr>
<td>Helicopter lightening package</td>
<td>$79,572</td>
</tr>
<tr>
<td>60,000 bbl tank barge</td>
<td>663,968</td>
</tr>
<tr>
<td>Helicopter of Opportunity Program</td>
<td>20,000</td>
</tr>
<tr>
<td>Salvage management and overhead</td>
<td>322,421</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$1,085,961</td>
</tr>
<tr>
<td><strong>Spill Response</strong></td>
<td></td>
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<tr>
<td>Nearshore task force equipment</td>
<td>$1,917,884</td>
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<tr>
<td>Vessel-of-opportunity program</td>
<td>562,000</td>
</tr>
<tr>
<td>Cascade program for out-of-region equipment</td>
<td>16,000</td>
</tr>
<tr>
<td>Marine-based logistics base</td>
<td>325,465</td>
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<tr>
<td>IMT program</td>
<td>146,516</td>
</tr>
<tr>
<td>Spill response staff, management, and overhead</td>
<td>1,215,080</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$4,182,946</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$13,622,895</td>
</tr>
</tbody>
</table>
• Membership
  – $13,000 Vessels with VRP
  – $ 7,000 All Deep Draft Vessels using the area

• Federal Appropriation for Vessels in Innocent Passage
Annual System Costs

Recommended Optimal Response System

$13.6 Million

Full Implementation of Federal Regulations

$42.7 Million

- Managing Entity
- Prevention
- Salvage
- Towing
- Spill Response
• Implement through Alternate Planning Criteria (APC)
  – System is tailored to the Aleutians
  – Emphasis on Prevention
• This optimal response should be the standard set for approval
• Conditional approval for long enough to implement
• Benefits **exceeds** predicted costs by a factor of 25 times
• Largest contribution is the value of the fisheries and natural resources at risk
• If socio-economic factors are not considered – break even
• Does not endorse any organization or APC
• AP agreed with most recommendations
• Exceptions
  – Type of Organization
  – Vessel Monitoring
  – Tug Location
  – Number of APCs
CONCLUSION

- Recommend System is based on extensive research and analysis
- Concurrence from majority of stakeholders
- Protects the fisheries and resources in the region
- Reasonable cost with obvious benefits
• Recommend adopting the optimal response system elements in the SCP
• Part 3(I): Response Section, Emergency Towing
  – Minimum tug requirements
  – Estimated times
  – Best available technology
  – Tug location study
• Part 3(J) Marine Response, Salvage, Recovery
  – Regulatory requirements
  – Response gap analysis
  – Vessel traffic analysis
  – Management and funding
  – Oil spill response and salvage
ALEUTIAN SUBAREA
CONTINGENCY PLAN

• Part 3(K) Special Procedures (new)
  – Dutch Harbor sever weather procedures
  – Recommended routing measures and areas to be avoided

• Part 3(L) Alternative Planning Criteria Standards and Risk Assessment Recommendations