Revised Analysis Plan
Rescue Towing Analysis Model

Adam Byrd, Alex Hess, Alex Suchar, James Murphy, JD Ross Leahy, Michael Koohafkan

July 13th, 2022
Today’s agenda

1. Introduction
2. Model and Analysis Review
3. Summary of Feedback
4. Questions and Comments
Materials for Today’s Event

Combined Analysis Plan (Revised)

Model Description (Revised)
## Model Analysis Projects

<table>
<thead>
<tr>
<th>Evaluation of Tug Escorts</th>
<th>Evaluation of a Response Tug</th>
</tr>
</thead>
<tbody>
<tr>
<td>“To inform rule making, the Board of Pilotage Commissioners must conduct an analysis of tug escorts using the model developed by the Department of Ecology”</td>
<td>“Quantitatively assess whether an emergency response towing vessel serving Haro Strait, Boundary Pass, Rosario Strait, and connected navigable waterways will reduce oil spill risk”</td>
</tr>
</tbody>
</table>
## Outreach and Consultation Timeline

<table>
<thead>
<tr>
<th>Model Development</th>
<th>Outreach and Model Runs</th>
<th>Report Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2020 – Spring 2022</td>
<td>Fall 2021 – Winter 2023</td>
<td>Spring 2023 – Summer 2023</td>
</tr>
</tbody>
</table>

- **Comment Period for Scopes of Work**
  - September 1-30, 2021

- **Webinar: Tug Escort and ERTV Analyses**
  - June 8\(^{th}\), 2022 -- 10 am to 12 pm

- **Webinar: Final Model Analysis Plan**
  - July 13\(^{th}\), 2022 -- 10 am to 12 pm

- **Webinar: Preliminary Outputs**
  - Winter 2023
Model and Analysis Review
Independent Evaluation

**With Initial Turn Included**

**Ship Actions**
- Self-repair time
- Drift to ground time
- Emergency anchoring time

**Tug Interventions**
- ERTV response time
- Escort response time
- Tug of opportunity response time

**Risk Metrics**
- Drift grounding event
- Oil volume at risk
- Oil outflow

**Without Initial Turn Included**

**Ship Actions**
- Self-repair time
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**Risk Metrics**
- Drift grounding event
- Oil volume at risk
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Independent Evaluation

Two Drift Paths Per LOP
• One with initial turn (green)
• One without initial turn (blue)

All Actions Calculated for Each Drift Path
• Drift to ground time
• Emergency anchoring
• ERTV response time
• Escort response time
• Tug of opportunity response time
Independent Evaluation

Two Drift Paths Per LOP
• One with initial turn (green)
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All Actions Calculated for Each Drift Path
• Drift to ground time
• Emergency anchoring
• ERTV response time
• Escort response time
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## Independent Evaluation

<table>
<thead>
<tr>
<th>Model Output</th>
<th>Without Initial Turn</th>
<th>With Initial Turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to drift grounding</td>
<td>489 minutes</td>
<td>402 minutes</td>
</tr>
<tr>
<td>Time to rescue (Victoria ERTV)</td>
<td>102 minutes</td>
<td>93 minutes</td>
</tr>
<tr>
<td>Time to rescue (Deltaport ERTV)</td>
<td>315 minutes</td>
<td>358 minutes</td>
</tr>
<tr>
<td>Time to rescue (Neah Bay ERTV)</td>
<td>351 minutes</td>
<td>322 minutes</td>
</tr>
<tr>
<td>Time to rescue (Closest Tug of Op)</td>
<td>152 minutes</td>
<td>130 minutes</td>
</tr>
<tr>
<td>Self Repair time</td>
<td>37 minutes</td>
<td>37 minutes</td>
</tr>
<tr>
<td>Emergency Anchoring Time</td>
<td>470 minutes</td>
<td>347 minutes</td>
</tr>
</tbody>
</table>
Summary of Feedback

- Tug Response Parameters
- ERTV Locations
## Tug Response Parameters

<table>
<thead>
<tr>
<th>Response Parameter</th>
<th>Current Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification Time</td>
<td>Immediate</td>
</tr>
<tr>
<td>ERTV Mobilization Time</td>
<td>20 Minutes</td>
</tr>
<tr>
<td>Assist/Escort Tug Mobilization Time</td>
<td>Immediate</td>
</tr>
<tr>
<td>Tug Average Response Speed</td>
<td>10 knots</td>
</tr>
<tr>
<td>Time to Connect</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Time to Control</td>
<td>15 minutes</td>
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</table>
Update to ERTV Scenarios

Same Tug Escort Scenarios
- Pre-2020 requirements
- Current requirements
- Escorts required throughout study area

ERTV Locations
- Port Angeles, WA
- Victoria, BC
- Anacortes, WA
- Roche Harbor, WA
- Sidney, BC
- Deltaport, BC
- **Port Townsend, WA**
Other Topics

Potential future Offshore Supply Vessel (OSV) in Beecher Bay

Scenario 3 – Escort tugs added to all geographic zones
Modification to TMEP Scenario

**TMEP Scenario**

- A traffic simulation to evaluate escorts associated with projected round-trip tank ship transits from the J-Buoy at the entrance to the Strait of Juan de Fuca to Westridge Terminal.

**Offshore Supply Vessel Stationed in Beecher Bay**

- Potential future resource, tasked with some escort duties.
- Could respond to vessel emergencies.

**Modification to Analysis Plan**

- Modified to include “a dedicated Offshore Supply Vessel (OSV) capable of performing rescue towing...in Beecher Bay, BC.”
Tug Escort Scenarios

Scenario 1: Pre-2020 requirements

Scenario 2: Current requirements

Scenario 3: Escorts Required Throughout Study Area

- Allows us to determine which area might have a higher potential benefit from requiring tug escorts
- Approach allows us to avoid prejudging which areas might be at higher risk
Next Steps and Upcoming events

Initial Model Runs
- July - August 2022

Webinar: Preliminary Outputs
- Winter 2023

Report Due to Legislature, September 2023
Today's discussion topics

• Requests for clarification or additional information

• Feedback on model description or other documentation

• Feedback on model structure and assumptions
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Spill Prevention, Preparedness, and Response Program

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Discussion logistics