Ports and Waterways Safety Assessment Workshop Report Aleutian Islands

Executive Summary

Risk identification and mitigation are and have been ongoing activities within the Aleutian Islands area. In support of that overall safety improvement activity, a formal Ports and Waterways Safety Assessment (PAWSA) for the Aleutian Islands was conducted in Anchorage, Alaska on 24 – 25 July 2006, sponsored jointly by the U.S. Coast Guard and the Alaska Department of Environmental Conservation. The workshop was attended by 20 participants representing waterway users, regulatory authorities, and stakeholders (i.e., organizations with an interest in the safe and efficient use of the Aleutian Islands for commercial and recreational purposes).

A Waterway Risk Model, incorporating 24 risk factors associated with both the causes and the effects of waterway casualties, was used throughout the workshop to guide discussions and numerical assessments. That model was originally conceived by a United States Dialog Group on National Needs for Vessel Traffic Services and has been refined based on experience gained during 38 previously held PAWSA workshops.

Waterway Risk Model					
Vessel Conditions	**Traffic Conditions**	**Navigational Conditions**	**Waterway Conditions**	**Immediate Consequences**	**Subsequent Consequences**
Deep Draft Vessel Quality	Volume of Commercial Traffic	Winds	Visibility Impediments	Personnel Injuries	Health and Safety
Shallow Draft Vessel Quality	Volume of Small Craft Traffic	Water Movement	Dimensions	Petroleum Discharge	Environmental
Commercial Fishing Vessel Quality	Traffic Mix	Visibility Restrictions	Bottom Type	Hazardous Material Release	Aquatic Resources
Small Craft Quality	Congestion	Obstructions	Configuration	Mobility	Economic

The PAWSA process uses a structured approach for obtaining expert judgments on the level of waterway risk for each factor in the Waterway Risk Model. The process also addresses the effectiveness of possible intervention actions for reducing risk in the waterway. The first step in the PAWSA process is for the participants to assess their expertise with respect to the risk categories in the model. Those self assessments are used to weigh inputs during all subsequent steps. The second step is for the participants to provide input for the rating scales used to assess

risk in the third step. The third step is for the participants to discuss and then numerically evaluate the baseline risk levels in the waterway using pre-defined qualitative risk descriptions. In the fourth step, the participants discuss and then evaluate the risk reducing effectiveness of existing mitigation strategies. Next, the participants are asked to offer new ideas for further reducing risk, for those factors where risk is judged to be not well balanced with existing mitigations. The effectiveness of the additional intervention actions in reducing unmitigated risk is then evaluated. Finally, the participants reevaluate their team's expertise and also evaluate the expertise of the other teams. The process produces the group's consensus of risks in this waterway and has proved to be an excellent tool for focusing risk mitigation efforts.

Based on extensive discussions during the workshop, concentrations of risks were noted by the participants in three locations:

- Dutch Harbor
- Unimak Pass
- North of Akun Island

The PAWSA Aleutian Islands participants judged that additional risk reduction actions were needed with respect to 14 of the 24 risk factors in the Waterway Risk Model. The table below summarizes that information and is ordered from highest to lowest possible risk improvement. The specific action listed is the one recommended by the most participant teams; see the detailed information at the end of this report for a full list of alternatives suggested during the workshop.

Risk Factor Name	General Strategy	Specific Action
Small Craft Quality	Rules & Procedures	License boat operators
Petroleum Discharge	Coordination / Planning	Update Subarea Contingency Plan (SCP) Logistics Section
Water Movement	Navigation / Hydrographic Info	Enhanced vessel reporting system Wind / water circulation study
Aquatic Resources	Coordination / Planning	Develop additional Geographic Response Strategies (GRSs)
Bottom Type	Navigation / Hydrographic Info	Update charts and Coast Pilot
Winds	Navigation / Hydrographic Info	Put in more wind sensors in passes
Visibility Restrictions	Navigation / Hydrographic Info	Require AIS on all commercial vessels > 26'
Hazardous Materials Release	Coordination / Planning	USCG receive all dangerous cargo manifests
Environmental	Coordination / Planning	Include biological release (non-indigenous species) in SCP
Mobility	Coordination / Planning	Better coordination during response
Commercial Fishing Vessel Quality	Rules & Procedures	Mandatory inspections for F/V > 26'

Risk Factor Name	General Strategy	Specific Action
Deep Draft Vessel Quality	Active Traffic Management	Establish VTIS for Unimak Pass
Shallow Draft Vessel Quality	Rules & Procedures	Require double hulls on all tank barges Put look-ahead sonar on all cruise vessels
Health and Safety	Coordination / Planning	Continue emergency response drills and planning

Report Contents

This PAWSA Aleutian Islands workshop report includes the following information:

- List of participants
- Numerical results from the following activities:
  - Team Expertise / Cross Assessment
  - Risk Factor Rating Scales
  - Baseline Risk Levels
  - Mitigation Effectiveness
  - Additional Interventions
- Summary of risks and mitigations discussion

Participants

The following waterway users and stakeholders participated in the PAWSA Aleutian Islands workshop:

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Geographic Area

The geographic bounds of the waterway area were defined as:

- That portion of the Bering Sea bounded by the great circle international shipping route to the north, 168° W longitude to the east, the Unimak Pass traffic fairway and Unalaska Island to the south, and 162° W longitude to the west, including Dutch and Akutan Harbors.

Numerical Results

Book 1 – Team Expertise

In *Book 1*, the workshop participants were asked to assess their own and all the other teams' level of expertise for each of the six categories in the Waterway Risk Model. Overall, 34% of the participant teams were placed in the upper third, 38% in the middle third, and 27% in the lower third of all teams. This distribution was very close to the "ideal" 33% / 33% / 33% distribution.

Book 2 – Risk Factor Rating Scales

Book 2 Results:

Risk Factor	A	B Value	C Value	D Value
Deep Draft Vessel Quality	1.0	3.2	5.8	9.0
Shallow Draft Vessel Quality	1.0	3.2	5.8	9.0
Commercial Fishing Vessel Quality	1.0	3.2	5.8	9.0
Small Craft Quality	1.0	3.2	5.8	9.0
Volume of Commercial Traffic	1.0	3.1	5.4	9.0
Volume of Small Craft Traffic	1.0	2.9	5.8	9.0
Traffic Mix	1.0	2.5	4.9	9.0
Congestion	1.0	2.9	5.1	9.0
Winds	1.0	2.6	5.3	9.0
Water Movement	1.0	3.0	5.2	9.0
Visibility Restrictions	1.0	3.0	5.7	9.0
Obstructions	1.0	2.2	4.7	9.0
Visibility Impediments	1.0	3.2	5.6	9.0
Dimensions	1.0	3.1	5.5	9.0
Bottom Type	1.0	2.5	5.1	9.0
Configuration	1.0	2.9	5.5	9.0
Personnel Injuries	1.0	3.2	5.8	9.0
Petroleum Discharge	1.0	3.8	6.3	9.0
Hazardous Materials Release	1.0	3.7	6.2	9.0
Mobility	1.0	3.0	5.4	9.0
Health and Safety	1.0	3.1	5.7	9.0
Environmental	1.0	3.2	6.0	9.0
Aquatic Resources	1.0	2.9	5.6	9.0
Economic	1.0	3.2	5.8	9.0

Book 2 Analysis:

Book 2 is essential to the mathematical computations used in the PAWSA model. The PAWSA risk assessment process uses an arbitrary 1 to 9 scale, where 1 represents very low risk and 9 represents extremely high risk. Participants provided input for calibrating intermediate points on the risk measurement scale for each risk factor, referred to as the "B" and "C" values in the table above. On average, participants from this waterway calculated the intermediate risk points as equal to 3.4 and 5.9, which are very close to the cumulative values (3.0 and 5.6) established by prior PAWSA workshop participants.

Book 3 – Baseline Risk Levels

Book 3 Results:

Vessel Conditions	Traffic Conditions	Navigational Conditions	Waterway Conditions	Immediate Consequences	Subsequent Consequences
Deep Draft Vessel Quality	Volume of Commercial Traffic	Winds	Visibility Impediments	Personnel Injuries	Health and Safety
3.4	3.2	7.6	1.0	5.8	2.8
Shallow Draft Vessel Quality	Volume of Small Craft Traffic	Water Movement	Dimensions	Petroleum Discharge	Environmental
3.3	1.0	7.7	3.8	8.6	7.3
Commercial Fishing Vessel Quality	Traffic Mix	Visibility Restrictions	Bottom Type	Hazardous Materials Release	Aquatic Resources
5.0	4.9	8.0	8.5	7.3	9.0
Small Craft Quality	Congestion	Obstructions	Configuration	Mobility	Economic
8.3	3.2	3.5	9.0	5.9	8.2

Risk values highlighted red (values at or above 7.7) denotes very high baseline risk levels; risk values highlighted green (values at or below 2.3) denote very low baseline risk levels.

Book 3 Analysis:

The participants evaluated the baseline risk levels in the waterway by selecting a qualitative description for each risk factor that best described conditions in the Aleutian Islands area. Those qualitative descriptions were converted to numerical values using the scales from the *Book 2* results. On those scales, 1.0 represents low risk (best case) and 9.0 represents high risk (worst case), with 5.0 being the mid-risk value.

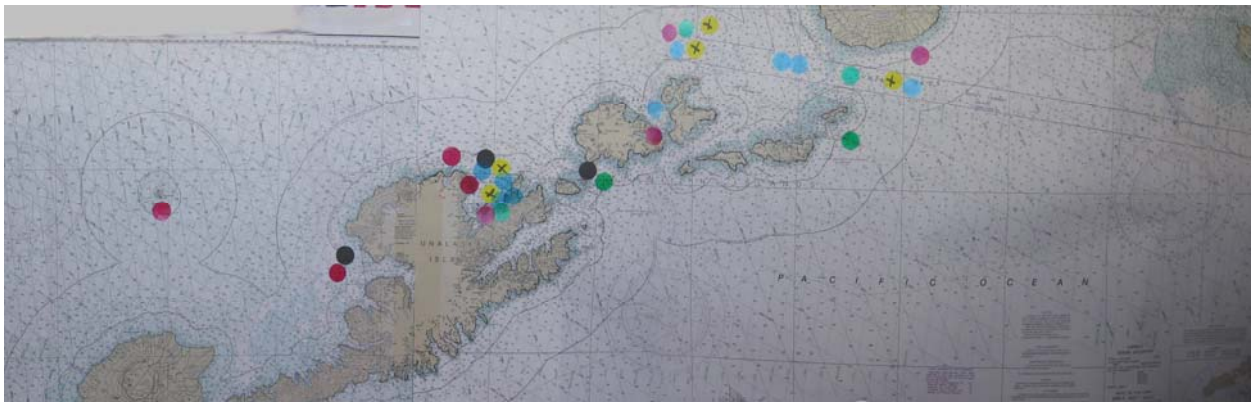
In the Aleutian Islands area, 14 risk factors were scored at or above the mid-risk value. They were (in descending order):

- Configuration (9.0)
- Aquatic Resources (9.0)
- Petroleum Discharge (8.6)

- Bottom Type (8.5)
- Small Craft Quality (8.3)
- Economic (8.2)
- Visibility Restrictions (8.0)
- Water Movement (7.7)
- Winds (7.6)
- Hazardous Materials Release (7.3)
- Environmental (7.3)
- Mobility (5.9)
- Personnel Injuries (5.8)
- Commercial Fishing Vessel Quality (5.0)

The PAWSA Aleutian Islands participants thought the way that the qualitative risk descriptions were written caused Deep Draft Vessel Quality to evaluate too low and Small Craft Quality to evaluate too high. They also thought that Environmental consequences evaluated too low.

Photo of Waterway:



As participants identified specific locations associated with particular risks, a nautical chart of the area was annotated with colored dots corresponding to the risk category being discussed, as follows:

Brown	Vessel Conditions
Yellow	Traffic Conditions
Green	Navigation Conditions
Blue	Waterway Conditions
Red	Consequences

The completed chart is shown on the preceding page. Note the concentrations of dots in three locations:

- Dutch Harbor
- Unimak Pass
- North of Akun Island

Book 4 – Mitigation Effectiveness

Book 4 Results:

Vessel Conditions		Traffic Conditions		Navigational Conditions		Waterway Conditions		Immediate Consequences		Subsequent Consequences	
Deep Draft Vessel Quality		Volume of Commercial Traffic		Winds		Visibility Impediments		Personnel Injuries		Health and Safety	
3.4	2.9	3.2	2.8	7.6	6.1	1.0	1.0	5.8	4.3	2.8	2.3
Maybe		Balanced		Maybe		Balanced		Balanced		Maybe	
Shallow Draft Vessel Quality		Volume of Small Craft Traffic		Water Movement		Dimensions		Petroleum Discharge		Environmental	
3.3	2.7	1.0	1.0	7.7	6.5	3.8	3.1	8.6	6.7	7.3	5.9
Maybe		Balanced		Maybe		Balanced		Maybe		NO	
Commercial Fishing Vessel Quality		Traffic Mix		Visibility Restrictions		Bottom Type		Hazardous Materials Release		Aquatic Resources	
5.0	3.8	4.9	4.0	8.0	5.8	8.5	6.7	7.3	5.6	9.0	7.4
Maybe		Balanced		Maybe		NO		NO		Maybe	
Small Craft Quality		Congestion		Obstructions		Configuration		Mobility		Economic	
8.3	7.5	3.2	2.9	3.5	3.3	9.0	5.0	5.9	4.6	8.2	5.4
NO		Balanced		Balanced		Balanced		Maybe		Balanced	

KEY	
Risk Factor	
Book 3	Book 4
Consensus	

	EXPLANATION
Book 3	Baseline level of risk
Book 4	Level of risk taking into account existing mitigations
Balanced	Consensus that risks are well balanced by existing mitigations
Maybe	No consensus that risks are adequately balanced by existing mitigations
NO	Consensus that existing mitigations do NOT adequately balance risk

Book 4 Analysis:

The participants examined the effectiveness of existing risk mitigation activities in the Aleutian Islands area with respect to all risk factors in the Waterway Risk Model. For ten risk factors, the participants were in consensus that risks were well balanced by existing mitigations; for four risk factors, the participants were in consensus that risks were NOT adequately balanced by existing mitigations; and for the other 10 risk factors, there was no consensus on whether existing mitigations adequately reduced risk. Consensus is defined as 2/3 of the participant expertise being in agreement.

Book 5 – Additional Interventions

Book 5 Results:

Vessel Conditions	Traffic Conditions	Navigational Conditions	Waterway Conditions	Immediate Consequences	Subsequent Consequences
Deep Draft Vessel Quality	Volume of Commercial Traffic	Winds	Visibility Impediments	Personnel Injuries	Health and Safety
Active Traffic Mgmt	Balanced	Nav / Hydro Info	Balanced	Balanced	Coordination / Planning
2.6		5.4			1.8
Shallow Draft Vessel Quality	Volume of Small Craft Traffic	Water Movement	Dimensions	Petroleum Discharge	Environmental
Rules & Procedures	Balanced	Nav / Hydro Info	Balanced	Coordination / Planning	Coordination / Planning
2.5		6.2		6.3	4.7
Commercial Fishing Vessel Quality	Traffic Mix	Visibility Restrictions	Bottom Type	Hazardous Materials Release	Aquatic Resources
Rules & Procedures	Balanced	Nav / Hydro Info	Nav / Hydro Info	Coordination / Planning	Coordination / Planning
3.7		5.4	5.7	5.3	5.9
Small Craft Quality	Congestion	Obstructions	Configuration	Mobility	Economic
Rules & Procedures	Balanced	Balanced	Balanced	Coordination / Planning	Balanced
7.2				3.9	

KEY			EXPLANATION
Risk Factor		Intervention	Intervention category that most participants selected for further risk mitigating actions
Intervention		Risk Improvement	The amount that present risk levels might be reduced if new mitigation measures were implemented
Risk Improvement	Caution	Caution	No consensus alert

Legend:

The intervention category listed is the one category that most participant teams selected for further reducing risks. The Risk Improvement is the perceived reduction in risk when taking the actions specified by the participants. A green Balanced indicates that no intervention is needed and risk is balanced in the waterway. A yellow Caution indicates a consensus alert meaning there was a difference between the most effective category and the category most selected by the participants for action.

Intervention Category Definitions:

Coordination / Planning	Improve long-range and/or contingency planning and better coordinate activities / improve dialogue between waterway stakeholders
Voluntary Training	Establish / use voluntary programs to educate mariners / boaters in topics related to waterway safety (Rules of the Road, ship/boat handling, etc.)
Rules & Procedures	Establish / refine rules, regulations, policies, or procedures (nav rules, pilot rules, standard operating procedures, licensing, require training and education, etc.)
Enforcement	More actively enforce existing rules / policies (navigation rules, vessel inspection regulations, standards of care, etc.)
Nav / Hydro Info	Improve navigation and hydrographic information (NTM, charts, coast pilots, AIS, tides and current tables, etc.)
Radio Communications	Improve the ability to communicate bridge-to-bridge or ship-to-shore (radio reception coverage, signal strength, reduce interference & congestion, monitoring, etc.)
Active Traffic Mgmt	Establish / improve a Vessel Traffic Service: information / navigation / traffic organization

Waterway Changes	Widen / deepen / straighten the channel and/or improve the aids to navigation (buoys, ranges, lights, LORAN C, DGPS, etc.)
Other Actions	Risk mitigation measures needed that do NOT fall under any of the above strategy categories

Book 5 Analysis:

The 14 risk factors needing additional risk reduction action (as shown by the final *Book 4* and *Book 5* results) are shown below, ordered from highest to lowest possible risk improvement.

- Small Craft Quality – Rules & Procedures (7.2)
- Petroleum Discharge – Coordination/Planning (6.3)
- Water Movement – Nav/Hydro Info (6.2)
- Aquatic Resources – Coordination/Planning (5.9)
- Bottom Type – Nav/Hydro Info (5.7)
- Winds – Nav/Hydro Info (5.4)
- Visibility Restrictions – Nav/Hydro Info (5.4)
- Hazardous Materials Release – Coordination/Planning (5.3)
- Environmental – Coordination/Planning (4.7)
- Mobility – Coordination/Planning (3.9)
- Commercial Fishing Vessel Quality – Rules & Procedures (3.7)
- Deep Draft Vessel Quality– Active Traffic Management (2.6)
- Shallow Draft Vessel Quality– Rules & Procedures (2.5)
- Health and Safety– Coordination/Planning (1.8)

Recommended Actions

The catalog of risks and possible mitigation strategies derived from the Aleutian Islands PAWSA workshop is set forth in the next section of this report. This listing provides an excellent foundation from which safety organizations can further examine and take appropriate risk mitigation actions for both near-term action and for future risk mitigation planning.

This listing should be viewed as a starting point for continuing dialogue within the local maritime community, leading to refined risk identification and more fully developed mitigation measures.

Vessel Conditions: Deep Draft Vessel Quality

Baseline Risks:

- 1,600 container ship transits / year
- 30 – 40 tankship transits / year
- Safety concerns with <10% vessels
- Middle of the road quality: fewer number of Port State Control detentions compared to previous years, but aging class of vessels still in operation
- Majority of traffic is westbound (coming from U.S. or Canadian ports) vs. eastbound traffic from a foreign country, which has less oversight (i.e., maintenance and inspection history not available to U.S. authorities)
- Some vessels perform maintenance at sea to avoid costs while in port (off charter); unsafe practice and results in someone else paying for lost time
- Some non tank vessels are older ships built in the 1980s with retrofits; also smaller vessels tend to be older
- Mix of crew nationalities results in poor communication due to lack of cohesiveness, knowledge and common language

Trends:

- Some aging fleets (depending on flag)
- Better standards on vessels, but declining quality of crew

Existing Mitigations:

- Vessel standards much higher compared to 15 years ago
- More fuel efficient vessels
- Fairly modern transient vessels
- The use of double hulls for non tank vessels
- Port State Control for foreign vessels
- Corporate management policies – positive (e.g., going around Aleutians) or negative (incentives for on time arrivals)
- International agreements such as the International Safety Management (ISM) Code and Standards for Training, Certification and Watchkeeping (STCW)
- Enforcement of regulations by USCG
- Pressure put on owners by insurance providers
- Documented contingency / response plans and preplanning (salvage companies and contractors standing by)
- Economic pressure on vessel owners – cost of accidents
- USCG requires Advance Notice of Arrival for vessels calling on a U.S. port
- Vessels within southeast Alaskan waters are required to report cargo to Tofino Traffic Center
- Requirement for pollution / response plans on all vessels over 400 GT transiting federal waters (Vessel Response Plans (VRPs) and Shipboard Oil Pollution Emergency Plans (SOPEPs))

Vessel Conditions: Deep Draft Vessel Quality (cont'd)

New Ideas (number of times suggested)**:**

- Establish Vessel Traffic Information Service (VTIS) for Unimak Pass (ship-to-shore communication) modeled after Tofino Traffic Center (Canadian traffic scheme, now at 100% voluntary participation) (7)
- Provide rescue tugs large enough to handle size of vessels operating in area (4)
- Establish mandatory Vessel Traffic System (VTS) for Unimak Pass (3)
- Encourage a cooperative effort between west coast U.S. ports and Canadian ports to require that vessels calling on those ports have planning standards specific to the Aleutian Islands in order to enter their waters; use dual plans for more than one location since there is a large benefit for vessels using the waterway (3)
- Require new construction on all large deep draft vessels to include redundant steerage and propulsion (3)
- Update charts and Coast Pilot (3)
- Require adequate storm rules or weather restrictions at Unimak Pass (1)
- Establish an insertion team to include USCG and pilots for use even outside of 3 miles if a significant enough threat is posed to a particularly sensitive area; especially when a situation is in extremis (1)
- Raise OPA 90 liability limits (1)
- Require vessels transiting Unimak Pass to report all vessel casualties by radio (1)
- Include cargo fee for Oil Spill Liability Trust Fund (OSLTF) (i.e., shippers to contribute to OSLTF) (1)
- Increase enforcement for older vessels (1)
- Establish navigation safety program that requires a vessel to declare that all systems are operating safely; require vessels to keep their engines running within a certain distance from shore or in specific locations (e.g., *M/V Selendang Ayu)* (1)
- Establish a voluntary traffic separation scheme (1)
- Obtain a profile of crews on all vessels (1)
- Conduct emergency training and salvage drills (1)
- Use a vessel tracking system – IMO passed treaties requiring long-range tracking along with U.S. long-range tracking and Automatic Identification System (AIS) usage – to provide validation of vessel quality, act as an early warning system for vessels in distress, and provide situational awareness of vessels operating within the waterway (1)
- Establish recommended (standard of care) seasonal routes for winter / summer (1)
- Establish a routing agreement requiring vessels to stay a certain distance from shore regardless of season (e.g., no transit within 100 miles of shoreline, with exception of passes) (1)
- Require all large vessels to have tow packages in Alaskan waters (e.g., Prince William Sound vessels are required to use tow packages) (1)
- Require pollution / response plans and prevention plans (including salvage, rescue and lightering) on all large vessels (U.S. and foreign) transiting federal waters on innocent passage.
  Note: Tremendous resistance from State Department and Department of Defense to hinder the freedom of international / innocent passage – if a regulation is imposed, there may be a ripple effect on other areas. Coastal states do not have the authority to regulate innocent passage but can impose passage, routing, pollution requirements (1)
- Provide additional USCG and Alaska Department of Environmental Conservation (ADEC) presence (1)

Vessel Conditions: Shallow Draft Vessel Quality

Baseline Risks:

- Types:
  - Primarily tugs / barges
  - 20 – 30 small commercial freighters
  - Minimal (few of each): Offshore Supply Vessels (OSVs); charter fishing vessels, small passenger vessels
- <10% poor quality
- Coastal trader / supply vessel incidents are usually a result of crew fatigue
- Single-skin hulled vessels still in operation
- Small boutique vessels (e.g., "Eco-tours") good quality, but operating in new territory (one vessel equipped with look-ahead sonar stated that it was not reliable)
- U.S. can only regulate U.S. vessels, not foreign vessels, which vary in quality
- Public vessels are not inspected and have no oversight (e.g., NOAA oceanographic research vessels and foreign naval vessels)
- Fuel barges are exempt from double hull requirement; vessels <1,500 GT are exempt
- Some vessels are entering without clearance by ship representative – loophole if allowed entry – lax regulatory compliance
- Navigational charts may be dated – moving in more confined waters may increase risk

Trends:

- No trends discussed

Existing Mitigations:

- STCW compliance
- OPA 90 compliance
- Little to no communication / language problems, majority of operators are locals, though national licensing can result in some non-local operators
- 90% are good quality (quality has increased dramatically in last 20-30 years, better crews)
- Towing fleet has been subjected to intense regulatory scrutiny; most operators are members of American Waterways Operators (AWO)
- AWO of a Responsible Carrier Program and audits for domestic operations
- International agreements such as the ISM Code for foreign vessels
- Port State Control for foreign vessels
- Many towing vessels are U.S. flagged
- Compulsory pilotage
- Permitting process for vessels operating near shore and in other sensitive areas (e.g, ecotour)
- USCG requires Advance Notice of Arrival for vessels calling on a U.S. port
- Small passenger vessel annual preseason safety seminars
- Freighters with licensed personnel on board; corporate policies with safety operations departments overseeing them
- New inspection regime for towing vessels (in effect within next 2 years)

Vessel Conditions: Shallow Draft Vessel Quality (cont'd)
New Ideas (number of times suggested)**:** • Establish VTIS for Unimak Pass (4) • Require double hulls on all tank barges (poses problem for larger barges using area) (3) • Require look-ahead sonar on small cruise ships (boutique vessels) (3) • Require new construction on shallow draft vessels to include redundant steerage and propulsion (1) • Expedite single-hull phase-outs (1) • Expand AIS requirements (1) • Develop new charts (1) • Develop standards for operating in Aleutian Islands (1) • Reduce rookery restrictions near Billings Head to allow shallow draft vessels to transit through that area (1)

Vessel Conditions: Commercial Fishing Vessel Quality	

Baseline Risks:
• Dutch Harbor – largest fishing port by volume in the U.S.
• Akutan Island – 2nd largest fishing port by volume (50 – 60 different vessels delivering variety of species)
• About 400 fishing vessels operating in Aleutian chain
• Many accidents in last 30 years, but fewer as time goes on
• Generally, the larger the vessel, the better maintained
  – >75 feet = 90% well maintained
  – Near-shore smaller boats have fewer requirements; therefore, can have more problems and tend to be not as well maintained as larger vessels
• Transient vessels often make port calls in Dutch Harbor
Trends:
• Quality of commercial fishing vessels is getting better, but not yet 100%
• More professionally operated vessels
	Existing Mitigations:
	• Fishing vessel safety – priority in Alaska for USCG
	• More aggressive approach to enforcement – USCG conducts onboard safety inspections to ensure compliance
	• Although no Federal inspection requirement, State and the National Marine Fishery Service observer program requires that USCG inspect commercial fishing vessels before getting underway resulting in greater inspection and maintenance oversight
	• Vessels must notify USCG before getting underway
	• Use of voluntary fishing vessel exams
	• National Marine Fishery Service interagency partnerships require follow-up if vessel is reported as not having completed required drills
	• Vessels required to conduct monthly safety drills (e.g., flooding drill); USCG is invited to attend and critique exercise before vessel leaves port
	• USCG Fishing Vessel Coordinator stationed in Dutch Harbor
	• Vessel operators generally have experience in Alaskan waters and are members of an insurance pool, which has higher criteria (e.g., operators must have letter of reference from another person on insurance board)
	• Every 2 years vessels are pulled out of the water for routine maintenance
	• Vessels required to use 5-minute shore watch alarm within 3 miles of shore

Vessel Conditions: Commercial Fishing Vessel Quality (cont'd)
New Ideas (number of times suggested)**:** • Require mandatory inspections of commercial fishing vessels >26 feet (8) • Encourage voluntary STCW Basic Safety Training classes (7) • Require crew licensing (3) • Require AIS on all vessels (3) • Establish VTIS for Unimak Pass (2) • Require electronics and upgrades (e.g., Automatic Radar Plotting Aid (ARPA) on vessels of certain size (1) • Develop new charts (1) • Establish a voluntary traffic separation scheme (1) • Provide additional USCG presence (1)

Vessel Conditions: Small Craft Quality

Baseline Risks:

- Up to 70% get too far away from adequate refuge
- Places that small craft operate:
  - Unalaska Island
  - Makushin Bay
  - Dutch Harbor
  - Cape Cheerful
  - Akutan Pass
- Recreational vessels are not as self sufficient as larger vessels
- Sport fishermen cross traffic lanes (e.g., commercial traffic) around Akun Island and Akutan Pass

Trends:

- No trends discussed

Existing Mitigations:

- USCG has an aggressive program – campaign to educate recreational boating community based on direct successes from commercial fishing vessel community
- Avoidance – when weather is nasty, small craft operators tend to stay ashore
- Vessels carry small amounts of gas or diesel fuel
- Vessels carry relatively few of people

New Ideas (number of times suggested):

- Require licensing for small craft operators (6)
- Require small craft to carry VHF radio and emergency position indicating radio beacon (e.g., EPIRB) (4)
- Provide an annual voluntary safety inspection of small craft (4)
- Provide voluntary education and training on heavy weather (4)
- Require small craft operators to file a mandatory float plan with harbor master (2)
- Require small craft to carry immersion suits (2)
- Require mandatory wearing of floatation device (e.g., life vest) (1)
- Develop new charts (1)

Traffic Conditions: Volume of Commercial Traffic

Baseline Risks:

- 3,000 – 3,500 vessel transits through Unimak Pass per year
  - 1,300 pilot operations (i.e., pilot moves deep draft vessels from station to berth)
- 10 vessels moving through Unimak Pass per day
- Principal traffic is westbound through the Aleutians
- Approximately 60 tank vessels transiting via Bering Sea; last three years not much change in operations

Trends:

- Increased container traffic due to new Canadian container facilities
- Increased volume of cargo westbound to Asia (several percent per year)
- Increased oil cargo eastbound
- Decreased fishing due to increased rationalization and over fishing
- Increased South American destinations as a result of China development
- Trade routes changing (e.g., South America to Northeast U.S. ports)

Existing Mitigations:

- No traffic separation scheme, but there is a safety fairway through Unimak Pass
  - Generally one-way traffic (westbound)
- Number of transits decreasing, but volume of cargo staying the same as vessel sizes increase
- Implementation of AIS has helped facilitate bridge-to-bridge communications
- Corporate policies more focused on safety
- Advancements in technology (e.g., ARPA)

New Ideas:

- Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.

<table>
<tr><th colspan="2">Traffic Conditions: Volume of Small Craft Traffic</th></tr>
<tr><td>Baseline Risks:
Relatively low volume of small craft traffic
< 30 vessels use waterway in Dutch Harbor
Trends:
Increase in numbers of small craft</td><td>Existing Mitigations:
Avoidance – when weather is nasty, small craft operators tend to stay ashore
Low population of small craft operators</td></tr>
<tr><td colspan="2">New Ideas:
Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.</td></tr>
</table>

Traffic Conditions: Traffic Mix	
Baseline Risks: • Collisions between deep draft and fishing vessels: – Unimak Pass on north end of Akun Island beyond 3-mile safety zone is a rich fishing zone (cod, pollock, etc.) – Dutch Harbor • Passing arrangements for east / west traffic are complicated with tug / barge traffic, small passenger and deep draft vessels – Akun Island is a turning point in the safety fairway – Crossing traffic is generally not equipped with AIS – Southwest corner of Unimak Pass to top of Akun Island and heading into Akutan Island or Dutch Harbor • The English language spoken by some crew members may not be clear or understood **Trends:** • No trends discussed	**Existing Mitigations:** • Implementation of AIS has helped facilitate bridge-to-bridge communications and passing arrangements – Commercial fishing vessels are starting to carry AIS as a safety feature (depends on home port / entering VTS area) • Knowledge and use of Rules of the Road • Changes seasonally (not a 365-day issue)
New Ideas (number of times suggested)**:** • Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.	

Traffic Conditions: Congestion

Baseline Risks:

- Bad weather can cause congestion storm force conditions for deep draft vessels (i.e., waiting for dock space while small craft vessels are running in / out); may only be 2 – 3 vessels at a time, but in reduced visibility and 30-foot seas, it can cause problems
- Dutch Harbor:
  - Congestion at various anchorages, especially when weather gets worse
  - Container vessels and fishing vessels making port calls
- January, February and early part of March: cod and pollock season
- Restricted area at Billings Head on Akun Island due to sea lion rookery; vessels are forced into fairway (transfers risk from marine mammals to collision)

Trends:

- No trends discussed

Existing Mitigations:

- Light congestion at Unimak Pass due to width of area (Unimak Pass is 10 miles across with a 4-mile wide safety fairway)
- Vessels heading westbound generally form a straight line
- Use of Severe Storm Plans when weather gets bad
- Use of pilots in Dutch Harbor to control deep draft vessels and vessel traffic
- Minimized number of fishing vessels participating in derbies.
- "Rationalized" fisheries resulting in limited congestion (e.g., longer halibut season = no need for halibut derby)

New Ideas:

- Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.

Navigational Conditions: Winds

Baseline Risks:

- Wind speed is typically higher here than other locations throughout the country, but mariners tend to get uncomfortable around 35-45 knots sustained winds
- Universal problem areas due to wind
- Late summer through early spring = semi-permanent low pressure (more stormy than calm) causing difficult sea conditions
- Difficult to predict on local basis (can have sunshine, snow and wind within a couple hours); requires onsite assessment; conditions can change radically within ¼ mile
- High wind results in high seas making smaller vessels difficult to pick up on radar
- Foreign vessels may not be aware of severe storm guideline requirements

Trends:

- Could be an increasing trend due to global warming

Existing Mitigations:

- NOAA installed several offshore weather / wind sensor buoy. Data is available (near real-time) on internet and by phone
  - Do not know if foreign vessels transiting through Unimak Pass use information
  - Vessel operators in port depend on that information
- "Rationalized" fishing instead of derbies – in theory allows fishing vessels to avoid heavy weather windows
- Use of heavy weather contingency plans and severe storm guidelines applicable to entire Aleutian chain
  - Cease commercial operations when too rough
  - Information gathered from companies was used as input to USCG and pilot developed guidelines with USCG / Captain of the Port (COTP) authority for enforcement
- Vessels share information, which may be more accurate than conventional weather station data
- People reading forecasts may not be knowledgeable
- Aleutian Islands may provide a lee from the winds (Pacific vs. Bering Sea)

New Ideas (number of times suggested):

- Establish additional wind sensors in Unimak Pass and Akun Pass (both sides) (10)
- Establish and use standardized storm rules (severe weather rules) vs. guidelines, but retain flexibility to change (i.e., avoid long-term regulatory changes) (3)
- Expand the scope of storm guidelines to Aleutian chain as a whole, particularly Unimak Pass (3)
- Establish VTIS for Unimak Pass (2)
- Require adequately sized tug escorts in high wind areas and restricted waters (2)
- Require AIS on all vessels (1)
- Conduct voluntary weather training (1)

Navigational Conditions: Water Movement

Baseline Risks:

- At Unimak Pass, Akutan Pass and smaller passes for barges / tugs, the ability of smaller vessels to maneuver against the opposing tide is difficult; operators will often wait for the tide to change
- 3-5 knots of current in Unimak Pass is common, though >7 knots does occur (6 feet of water level passes from the Gulf of Alaska to the Bering Sea and back through narrow passes)
- Water usually flows with the channel southeast to northwest and vice versa
- Currents are predicted well, but not sea conditions
- Physical Oceanographic Real-Time System (PORTS) not installed in this area

Trends:

- No trends discussed

Existing Mitigations:

- Operators tend to have good local knowledge
- Local knowledge of existing conditions at port
- Accurate tide and current tables, including Coast Pilot
- Use of severe storm guidelines
- Tide height sensors are installed at Sennett Point and Unimak Pass
- Compulsory pilotage:
  - Foreign vessels
  - U.S. flagged vessels over 5,000 GT
- Tug boats currently report sea conditions using standardized forms

New Ideas (number of times suggested):

- Develop a hydrological model / conduct a study to determine wind and water circulation (7)
- Encourage U.S. and foreign flag vessels to report sea conditions via standardized form; can use Navy website to determine wind, swell / wave height; information fed back to VTS (6)
- Require new construction on all large deep draft vessels to include redundant steerage and propulsion (3)
- Add weather sensor buoys (1)

Navigational Conditions: Visibility Restrictions	
Baseline Risks: • Foggy conditions in late spring, all of summer and early fall • Fog typically hugs islands on Bering Sea side more so than Pacific side • Poor weather (e.g., rain / sleet) reducing visibility to ½ mile about 15-20% of the time (10-20 days a month experience 2-mile visibility in summer months per the Coast Pilot) • Coast Pilot information is outdated **Trends:** • No trends discussed	**Existing Mitigations:** • Use of equipment: – Radar – Horn – Electronic Chart Display Information System (ECDIS) – AIS • Use of agent with local knowledge to describe local conditions, especially for foreign vessels • Rules of the Road knowledge (specifically requirements to slow down and watch for other vessels in reduced visibility) • Manning schemes with multiple crew members on watch • Use of autopilot may allow for proper lookout, but could also contribute to an accident
New Ideas (number of times suggested)**:** • Require AIS on vessels > 26 feet (9) • Establish VTIS for Unimak Pass (7) • Require more bridge watchstanders / increase manning standards (5)	

Navigational Conditions: Obstructions	
Baseline Risks: • Crab and cod pots on north side of Akun Island • Minor problems with deadhead obstructions • Occasionally larger vessels have to steer clear of cod and halibut fishing gear, but not generally in traffic lanes • Volcanoes and earthquakes cause safety impact, particularly if ash is taken into the vessel's engines • Vessels can ice over in cold conditions • Overhanging gantry cranes in Dutch Harbor **Trends:** • No trends discussed	**Existing Mitigations:** • Charts • Broadcast Notice to Mariners • Local knowledge • Improved electronic technology (radar)
New Ideas: • Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.	

Waterway Conditions: Visibility Impediments	
Baseline Risks: • Lighting on cod pot fishing vessels is so bright that it hides the running lights on some vessels ("Norwegian Sun") **Trends:** • No trends discussed	**Existing Mitigations:** • Local knowledge of area
New Ideas: • Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.	

Waterway Conditions: Dimensions

Baseline Risks:

- Passing arrangements usually used at –
  - Unimak Pass
  - Dutch Harbor
  - East Channel
  - Hook Bay
  - Iliuliuk Channel
- Limiting draft of 42 feet from Iliuliuk Bay into Dutch Harbor caused by bar near sea buoy – problematic for vessels looking for refuge / repair (e.g., could not get *M/V Selendang Ayu* into Dutch Harbor)
- Dutch Harbor's container ship terminals sometimes leave cranes in outboard maintenance mode
- Smaller cruise ships going into areas not normally navigated
- Charts:
  - Inaccurate / outdated (World War II era surveys); particularly in near-shore areas
  - Some vessel operators are using foreign charts with questionable quality
  - Volcanic activity may change depths substantially

Trends:

- No trends discussed

Existing Mitigations:

- Width of Unimak Pass is 10 miles across with a 4-mile safety fairway
- Use of pilots with local knowledge on all large vessels (only exemption is from one pilot station to another)
- NOAA is currently working on chart problems (deep draft issues first; shallow draft, second)
- Storm avoidance at ports of safe refuge:
  - Dutch Harbor
  - Adak Island
- Use of equipment:
  - Precision navigation guidance
  - Forward looking sonar
  - Fish finding sonar (can detect shoals)

New Ideas:

- Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.

Waterway Conditions: Bottom Type	
Baseline Risks: • Rocky bottom outside of fairways (specifically in Unimak Pass and containership fairway into Dutch Harbor) • Inaccurate and outdated charts **Trends:** • No trends discussed	**Existing Mitigations:** • The use of double hulls for non tank vessels – mitigates consequences of a grounding incident • Local knowledge • Pilotage • Coast Pilot – anchoring areas described, and whether holding is good or not; found to be helpful historically • Salvage experts and equipment in area • Mariners submit Notice to Mariners if unusual circumstances encountered (e.g., rocks, navigational buoys off station)
New Ideas (number of times suggested)**:** • Update charts and Coast Pilot with accurate information by 1) using information already available through local means, and 2) obtaining information from other agencies (10) • Conduct "places of refuge and anchorages" study as was done for Cook Inlet, Kodiak, Prince William Sound (8) • Change offset requirements for smaller vessels so operators can transit – but not fish – closer to the north side of Akun Island (i.e., sea lion rookery at Billings Head) (e.g., establish a 3-mile fishing limit / 1-mile transit limit) (5) • Use of rescue tugs (2) • Identify a large protected area(s) that can handle vessels in need of assistance based on case-by-case basis ("sacrificial bay") (1) • Require mandatory pilotage on all commercial vessels transiting Unimak Pass (1) • Establish a VTS in Unimak Pass (1)	

Waterway Conditions: Configuration	
Baseline Risks: • Radical bends (Dutch Harbor): – Into Horizon Line terminal there is a 90° course change – Iliuliuk East Channel – Captain's Bay • Traffic convergences north of Unimak Pass and out of Akutan Bay (north / south traffic merges into east / west traffic) • Fishing area north end of Akun Island requires crossing traffic lanes of Unimak Pass **Trends:** • No trends discussed	**Existing Mitigations:** • Navigational aids • Pilotage • Rules of the Road • Little enough vessel traffic – do not have a lot of accidents • Good coordination of navigational traffic – operators are generally aware of other vessels
New Ideas: • Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.	

Immediate Consequences: Personnel Injuries

Baseline Risks:

- 2-3 larger cruise ships per year (passing through mostly)
- 10 cruise ships / season into Dutch Harbor as repositioning ships (making port calls in Dutch Harbor or Kodiak, i.e., vessel is finished far east cruising and making port calls in Alaska)
  - From far east: 1200 – 2500 passengers (4000 total including crew)
  - Smaller groups into western Alaska and Russia: 150 passengers
- Alaska Marine Highway: 20 trips per year; 210 passengers per vessel
- Fishing / processor vessels with over 100 crewmembers
- Limited charter fishing
- 20 – 30 people (crew members or passengers) on other fishing and merchant vessels
- Possibility of overwhelming community in dealing with incidents

Trends:

- No trends discussed

Existing Mitigations:

- Shipboard training / emergency plans
- Cruise ships – built to higher standards; lifeboat drills before leaving port; mustering drills; crews trained for smoke / fire / passenger control
- Able to contact USCG for assistance, medical advice; can contact via email / satellite phone
- If cruise ship evacuation:
  - Multitude of fishing vessels would respond
  - Previous actual evacuations have been effective (e.g., *M/V Princendam*)
- Automated Vessel Response System (AMVER)
- GMDSS for immediate emergency communication to others
- Drills:
  - Cruise ship industry sponsors annual voluntary drills with USCG (i.e., mass rescue scenario)
  - Statewide drills – primarily out of Sector Juneau, but there were three in Prince William Sound
- Larger fish companies have safety teams to conduct safety classes on each vessel; trained in assisting resources, to a certain level

New Ideas:

- Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.

Immediate Consequences: Petroleum Discharge	
Baseline Risks: • Some local tanker traffic (*M/V Renda*, 39,000 barrels) • 30 – 40 tankship voyages / year with a combined total of 800 million gallons of petroleum cargo using Unimak Pass • 1,600 container ship transits / year with combined total of 1.8 million gallons of persistent oil – only about 150 port calls • Barges can carry up to 135,000 barrels each • Red Dog Mine – large petroleum transfers; 250,000 barrels lightered into port • Liquefied Natural Gas (LNG) tankships use great circle route • Response is complicated by location; getting to site is extremely difficult and time consuming; complicated to figure out if well prepared • Subarea Contingency Plan (SCP) currently does not adequately address logistics • Non tank vessels do not have to comply with Alaskan law **Trends:** • Increased crude oil tankship traffic from Russia to U.S.; Russian terminal due to open in 2007 • Possible increase in LNG tankships from Russia • Deepwater port for Red Dog Mine (but probably years away)	**Existing Mitigations:** • Not all tankships will transit through Unimak Pass, but some will stay south instead • Tankships have oil spill contingency plans, oil spill co-ops, crew training resources and requirements • Non tank barges have State contingency plans, alternative compliance programs (State and Federal), contracted cleanup • Dutch Harbor – oil spill co-op works with member companies, and USCG; inspection of equipment; requirement for contingency plans; have Incident Management Teams (IMTs); company training; Incident Command System (ICS) training • SOPEPs and quarterly drills are required on larger vessels • Alaska probably has more oil spill response resources than anywhere else in U.S., but setting up logistics for responders is very difficult • State and Federal government place requirements on vessels regarding bad weather conditions – cannot safely conduct cleanup until weather abates (have to do cleanup on beach / water later) • For beach cleanup, basic rakes and shovels are needed, but National Response Plan regulates what companies are required to do • Good forecasting and weather monitoring • Response managers work together to develop Geographic Response Strategies (GRSs) before a spill occurs so responders can adequately respond to the specific area • Standard Spill Tactics for Alaska Responders (STAR) Manual available

Immediate Consequences: Petroleum Discharge (cont'd)

New Ideas (number of times suggested)**:**

- Train fishing vessel crews as responders (6)
- Update SCP logistics section (5)
- Provide better (and more) pollution response equipment, especially in Dutch Harbor (4)
- Develop additional GRSs (site specific for sensitive areas) to be included in SCP, so responders know what is and is not appropriate in a particular area (4)
- Provide voluntary Occupational Safety and Health Administration (OSHA) certified labor training to keep labor pool at an adequate level when assistance is needed (3)
- Promulgate and enforce regulations requiring better salvage and lightering capabilities for foreign and U.S. vessels (part of OPA 90) (2)
- Require VRPs for all vessels transiting through Unimak Pass, even those on innocent passage (2)
- Plan for better mobility from Dutch Harbor to site (e.g., faster than a couple weeks, though during inclement weather response is limited) (1)
- Plan for better control of volunteer responders; focus on initial stages of an incident: limit responders in certain areas (e.g., Dutch Harbor, *M/V Selendang Ayu*); those trying to help can complicate the issues (1)
- For contracting and finances: respond immediately; protect the responder as well as the response efforts (1)
- Stand up additional qualified IMTs (1)
- Finalize USCG regulations for fire / salvage response planning requirements (1)
- Provide better coordination (1)
- Provide escort and response tugs (1)

Immediate Consequences: Hazardous Materials Release

Baseline Risks:

- AIS data shows:
  - 50 chemical tanker transits over a 9 month period
  - 65 bulk chemical carrier transits over 400 GT / year, but do not know type of cargo
- Some chemicals carried through area:
  - Ammonia (NH_3)
  - Urea
  - LNG
  - Agricultural herbicides and pesticides (recommended 20-mile evacuation zone), but are containerized
  - Chlorine (barge caught on fire in previous incident, but chemical was containerized)
- Hazmat Study has gaps in data – not sure what exactly is being carried through area

Trends:

- No trends discussed

Existing Mitigations:

- State government providing funding and training to fire departments (first responder training, hazards, air monitoring) – can be mobilized in Unalaska, Dutch Harbor
- National Guard 103rd Civil Support Team asset deployable by air (based out of Anchorage)
- USCG Pacific Strike Team
- Break bulk shipments are limited; kept away from populated areas; most chemicals will evaporate rapidly
- AIS captures cargo type (limited)

New Ideas (number of times suggested):

- Identify chemicals being carried: USCG should receive all dangerous cargo manifests for vessels entering U.S. waters (territorial seas) including Unimak Pass (24 hours before departure, vessels must provide manifest of cargo to U.S. customs, but USCG does not require dangerous cargo manifest as part of ANOA) (8)
- Require ANOA for vessels on innocent passage (6)
- Require VRP requirements for all vessels through Unimak Pass, even those on innocent passage (1)
- Establish a (USCG accessible) database to identify cargo from other U.S. ports (1)
- Route vessels away from spill; vessel management through USCG, GMDSS, NTM (1)
- Conduct better response training (1)
- Route vessels away from sensitive areas (1)
- Provide escort and response tugs (1)

Immediate Consequences: Mobility	
Baseline Risks: • Sinking and / or spill could result in the closing of Dutch Harbor and Akutan Harbor • Small craft traffic closures after a larger incident have been used to keep smaller craft out of the way during salvage / response operations • If Iliuliuk Channel blocked, there could be an impact on Dutch Harbor operations • USCG has legal authority to shut down Unimak Pass, but actuality of shutting it down is slim • East Channel and entrance to Captain's Bay could be closed by a large vessel grounding • May not have adequate assets to respond quickly enough (*M/V Redeemer* – 12,000 horsepower, but 15,000 may be needed in some cases) **Trends:** • Currently a plan for a large OSV to operate out of Adak Island, but dedicated to missile range so may not be available for emergency response	**Existing Mitigations:** • Adequate salvage equipment in Dutch Harbor (for most incidents) • Additional (larger) salvage equipment is located in Oregon – 1 week vessel transit
New Ideas (number of times suggested)**:** • Enhance proper coordination for use of existing equipment (particularly with a foreign master) (9) • Provide dedicated salvage vessels and gear adequate in Dutch Harbor to handle large vessels in distress (sufficient to handle the worst case scenario) (6) • Develop salvage regulations (1)	

Subsequent Consequences: Health and Safety	
Baseline Risks: • Dutch Harbor = 5,000 people • Akutan Island = smaller population • Water supply for Dutch Harbor comes from a fresh water lake • Seafood processing would be impacted by a spill in Dutch Harbor • Social and psychological issues for subsistence areas; social cohesiveness, resilience of community • Ammonia (NH_3) releases from vessel in port is worst case scenario **Trends:** • No trends discussed	**Existing Mitigations:** • Fewer complications due to low population density • Unified Command System and first responders • Drills by local emergency response forces and contingency planning committees • Dutch Harbor newspaper provides an ongoing list of emergency incident actions and suggestions • Veterans of emergency response; highly experienced • Use of ICS public information officer and/or group
New Ideas (number of times suggested)**:** • Continue coordination planning / emergency drills and exercises (9) • Update training (1) • Allow ICS to effectively track all response vessels (for safety issues) via transponder systems (1) • Review potential risks (1) • Provide long-term subsistence community monitoring (similar to Pribilofs stewardship program) (1)	

Subsequent Consequences: Environmental	
Baseline Risks: • Near-shore areas are sensitive including passes (1913 recognition by President) – Migratory birds (e.g., Unalaska point sources and rookeries), marine mammals, other endangered and threatened species – Historic properties, prehistoric archeological resources, land management, National Wildlife Refuges, national historic landmarks • Unimak Pass is critical as hazards can be carried into Bering Sea and Gulf of Alaska • There are no marine sanctuaries • Incidental landings on other islands poses contamination issues (e.g., rat infestation) • Deep-water corals are highly sensitive and are throughout geographic area • Biological release (much larger issue in Alaska than in other areas of U.S.) • Response asset effectiveness can be limited due to weather conditions and water current **Trends:** • No trends discussed	**Existing Mitigations:** • Resource agencies participate with USCG and State in: – Identifying sensitive areas – Developing guidelines for dealing with potential capture and treatment of migratory birds and sea otters – Streamlining consultations – Developing programmatic agreements for historic areas / properties • Partners with potential use of dispersants, areas of refuge • Trained personnel / first responder capabilities • Cleanup co-ops – equipment sharing, more available:

Subsequent Consequences: Environmental (cont'd)

New Ideas (number of times suggested)**:**

- Conduct wildlife response cleanup training for Dutch Harbor locals with regard to animal capture and treatment (6)
- Include measures in SCP to respond to biological releases (with regard to invasive species) SCP (5)
- Allow ICS to effectively track all response vessels (for safety issues) via satellite systems / use of transponders (4)
- Raise liability limits and change language in OSLTF to use OSLTF funds for acquiring prevention assets throughout the U.S. (4)
- Develop additional GRSs (site specific for sensitive areas) to be included in SCP, so responders know what is and is not appropriate in a particular area (2)
- Provide long-term subsistence community monitoring (similar to Pribilofs stewardship program) (1)
- Establish VTS in Unimak Pass (1)
- Include cargo fees for OSLTF (1)
- Require VRPs on all vessels through Unimak Pass so a responsible party can be quickly contracted in the event of an accident (1)
- Provide escort and response tugs (1)

Subsequent Consequences: Aquatic Resources	
Baseline Risks: • Large commercial fisheries, year-round • Locations where harvesting of aquatic resources occurs: – North of Akutan Island – West side of Unalaska Island – Makushin Bay – Reese Bay (north side of Unalaska Island, west of Cape Cheerful) – subsistence salmon fishery – South side of Unimak Island is pollock nursery ground • Large amount of recreational fishing **Trends:** • No trends discussed	**Existing Mitigations:** • Inspection program for fish using quality control methods: zero tolerance policy for petroleum • Regulations stipulate fishing industry requirements • Monitor oil plume to divert fishing vessels with live tanks, if needed • Conduct decontamination process on response vessels daily • Use of booming methods to protect oil from going into fish processing plant intakes • Sampling methods already used regularly to establish baseline levels • Standard sampling protocols developed by State
New Ideas (number of times suggested)**:** • Develop additional GRSs (site specific for sensitive areas) to be included in SCP, so responders know what is and is not appropriate in a particular area (9) • Provide a seat for a deep draft shipping industry (private / commercial interest) representative on the North Pacific Fisheries Management Council (4) • Provide escort and response tugs (1)	

Subsequent Consequences: Economic	
Baseline Risks: • If water is contaminated, seafood processing would be impacted • Dutch Harbor and Akutan harbor closures = possible international impact due to primary transit routes of cargo vessels and fishing vessels, but more likely local and near port impacts **Trends:** • No trends discussed	**Existing Mitigations:** • Alternate routes available (great circle route, Unimak Pass, Gulf of Alaska) • Alternate modes of transport (aircraft) for fish cargoes
New Ideas: • Risk level judged to be well balanced with existing mitigations, so no new ideas were discussed.	