Cook Inlet RISK ASSESSMENT

cook inlet risk assessment

Presentation to Cook Inlet Harbor Safety Committee

April 26, 2018

The Cook Inlet RCAC, U.S. Coast Guard and State of Alaska are conducting a risk assessment of maritime transportation in Cook Inlet, Alaska.

Alaska Department of Environmental Conservation

United States Coast Guard · 17th District ·

Cook Inlet RCAC

Overview

WHO?

- Management Team (CIRCAC, ADEC, USCG)
- Advisory Panel
- Dr. Jack Harrald, George Washington University
- Funding from ADEC (via KPB & CIRCAC), USCG, NFWF, Tesoro Alaska, PWSRCAC
- Facilitated by Nuka Research & Pearson Consulting

WHAT?

- Analysis & recommendations based on risk assessment of marine vessel spills (> 300 GT or > 10,000 gal. capacity)

Overview

WHERE?

WHEN?

- 2011-2015

WHY?

- Identify measures to reduce risk (hazards x consequences) from marine oil spills

Process

- PHASE 1 – *What are the hazards & consequences of spills from marine vessel traffic?*
  - Vessel traffic (Cape International, 2012)
  - Spill baseline & causality study (Glosten and ERC, 2012)
  - Consequence analysis workshop & report (Nuka Research & Pearson Consulting, 2013)

- PHASE 2 – *What risk reduction options are recommended?*
  - List developed from Advisory Panel, public comment
  - Additional research as directed by Management Team
  - Final report (2015)

Phase 1 results

- 2010 vessel traffic similar to previous studies (2005-2006)
  - 480 ship port calls
  - 15 individual ships made 80% of calls by self-propelled vessels made by 15 ships
- Overall 3.4 spills/year historically
- Estimated 3.9 spills/year 2015-2020
  - Tank ships lowest estimated spill rate, but greatest potential consequences
- Even moderate spills (~100 bbl) can have significant impacts, depending on timing and location

Phase 2 results

- Advisory Panel recommended risk reduction options (RRO)
- Public input invited (meetings, comment period)
- Management Team selected which RROs should be studied further
- Final RROs in final report

STAGE 1 Basic/Root Causes	STAGE 2 Immediate Causes	STAGE 3 Incident	STAGE 4 Accident	STAGE 5 Consequence	STAGE 6 Impact
E.G.: Inadequate Skills, Knowledge, Equipment, Maintenance, Management	*E.G.: Human Error, Equipment Failure, Hazardous Situation*	*E.G.: Propulsion Failure, Steering Failure, Human Error*	*E.G.: Collisions or Groundings*	*E.G.: Oil Outlfow, Persons in Peril*	*E.G.: Environmental Damage or Loss of Life*

RISK REDUCTION/PREVENTION

Decrease Frequency of Root/Basic Causes	Decrease Frequency of Immediate Causes and/or Exposure to Hazardous Situations	Intervene to Prevent Accident if Incident Occurs	Reduce Consequences (Oil Outflow) if Accident Occurs	Reduce Impact if Oil Outflow Occurs

Risk Reduction Interventions Considered in CIRA

Decrease Frequency of Root/Basic Causes	Decrease Frequency of Immediate Causes and/or Exposure to Hazardous Situations	Intervene to Prevent Accident if Incident Occurs	Reduce Consequences (Oil Outflow) if Accident Occurs	Reduce Impact if Oil Outflow Occurs
2018 Cross-Inlet pipeline displaces tanker traffic 2015 Establish Harbor Safety Committee • Sustain/enhance training for pilots/crew • Harbormasters notify USCG if vessels appear unsafe or unseaworthy	• Maintain project depth at Knik Arm • Expand cellular coverage • Third party workboat inspections • AIS/WX information	• Self arrest • Emergency towing	2014 Promulgate federal non-tank vessel planning requirements 2017 Update and improve Subarea C-plan	• Continuous improvement of oil spill response equipment

Training for pilots/crew in Cook Inlet

Cook Inlet pilots, vessel officers and shoreside vessel managers engage in simulator training above and beyond normal qualifications specifically focused on the Cook Inlet operations and ice navigation.

Harbormasters Notify USCG of Unsafe Vessels

Harbormasters and Port Directors in Cook Inlet establish procedures to help them identify unsafe and unseaworthy vessels, and to contact the USCG when they turn such vessels away.

Procedure should be included in port/harbor Standard Operating Procedures and/or included in the certification criteria for the Alaska Clean Harbors Program.

Many ports and harbors in Cook Inlet already have achieved a strong understanding and communications plan regarding the limits of their equipment and facilities. Where these do not exist, they should be developed (through a mooring study or other analysis) and incorporated into the communications practices used by port and harbor personnel in their verbal and written interactions with vessels calling at their docks or moorings.

Dredging at Knik Arm Shoal

The Advisory Panel recommends that Knik Arm shoal be dredged as needed to maintain project depth, thereby reducing the potential for vessel grounding in this area.

Expand cellular & VHF coverage

Communications infrastructure should be enhanced to fill gaps in cellular and VHF coverage for vessels operating on Cook Inlet waters.

Expanding situational awareness via AIS

AIS software companies should upgrade software to allow vessel operators to receive information transmitted via AIS on board when requested.

Upgrade should be widely disseminated to current users and included in new software sales.

Enhancing workboat safety

Local and occasional workboat operators in Cook Inlet should continue to use third party audits/inspections of their vessels and procedures to promote safe operations.

The workboat community should be represented in the HSC to facilitate identifying and addressing any future safety issues associated with workboat operations on Cook Inlet waters.

New vessels working in Cook Inlet for the first time should have a way to check in with HSC to facilitate the identification of vessels with less experience operating in Cook Inlet conditions.

Vessel self-arrest & rescue towing

The HSC should coordinate continued study to:

1) Demonstrate or qualitatively study the ability to arrest and control a large, deep draft vessel in Upper Cook Inlet sea ice conditions, with input from large vessel mariners and local marine pilots, and, as needed, experts in materials, engineering, simulations, and ship dynamics.
2) Demonstrate or otherwise qualitatively study the ability of a large, deep-draft vessel to self arrest in different parts of Cook Inlet, including identifying areas where this practice is more or less likely to be successful; identifying areas where this should *not* be conducted due to pipe, power, or communication lines located on the seabed floor; identifying best practices for implementation, and estimating the amount of time – and therefore associated vessel drift – that this would take. This effort should also involve large vessel mariners and local pilots, as well as experts in sea ice, ship and ice dynamics, and simulations.

Response equipment

Response resources should be continually tested and assessed to validate and improve on its effectiveness and ensure that the best available, proven technology is being used.

Harbor Safety Committee

Already implemented, but note recommended issues:

- Enhancing ice monitoring to inform vessel operations (radar)
- Participate in update to USCG's ice guidelines
- Update Automated Wreck and Obstruction Information System (**AWOIS**) via NOAA
- Update Coast Pilot
- Further examination of self-arrest/rescue towing issues for Cook Inlet

Conclusion

- Experienced maritime community with proven commitment to working together
- Applicable state and federal regulations
- Two spill response organizations
- Many risk reduction measures already in place
- Still, strong currents, ice, other conditions challenge maritime operations
- Infrequent visitors increase risk if unfamiliar
- While ”accessible” compared to other areas in Alaska, some parts of Cook Inlet far from rescue/response