

PAME II-2018 – Agenda Item 6.7(b)

Joint PAME-EPPR Project to Produce a Compendium of Arctic Ship Accidents (CASA) Status Update by USA

References and Related Documents

- PAME, Arctic Marine Shipping Assessment (AMSA) Report (2009)
- PAME (II)/16.5.7/d (USA, CAN), Proposed Project for PAME Work Plan 2017-2019: Joint PAME –EPPR Project to Produce a Compendium of Arctic Ship Accidents Since 2005
- Senior Arctic Officials’ Report to Ministers, Fairbanks, Alaska, United States (11 May 2017), pp. 50, 55
- PAME 2017-2019 Work Plan (“Develop a compendium of shipping accidents in the Arctic for the period 2005-2017 to update the database of shipping accidents in the Arctic contained in the 2009 Arctic Marine Shipping Assessment (AMSA) Report and provide information useful to considering measures that might be pursued to reduce the risk of accidents” [USA lead])
- EPPR, Record of Decisions, June 27-29, 2017, Vologda, Russian Federation (“EPPR decided to support participation of the working group in the joint PAME/EPPR project titled the Compendium of Arctic Shipping Accidents. The United States will prepare a project proposal and submit to EPPR for approval intersessionally.”)
- PAME I-2018 RODs (“PAME invites all members to submit by 1 April any available information on ship accidents in the Arctic since 2005 to the joint PAME/EPPR Compendium of Arctic Ship Accidents (CASA) project. PAME invites the US to provide an update of the project to the PAME SEG at PAME II-2018.”)

Background

As noted in the PAME II-2016 paper submitted by the USA and Canada, the shipping incident information in the 2009 AMSA Report is more than 10 years old. Since then, human and economic maritime activity, including shipping traffic, in the Arctic region has increased and diversified with the reduction of seasonal sea ice. As such, the USA and Canada proposed pursuit of a joint project with EPPR to develop a compendium of Arctic ship accidents covering the period of 2005-2018. PAME I-2017 included the proposed project in PAME’s 2017-2019 Work Plan, which was subsequently approved by Senior Arctic Officials in May 2017. At EPPR I-2017, EPPR adopted a record of decision in which it supported participation of the working group in the joint PAME/EPPR project titled the Compendium of Arctic Shipping Accidents (CASA).

Discussion and Summary

To develop the CASA, member governments provided data to the USA in readily available form and format. To compile the data for analysis, the project lead formatted and configured it in a consistent fashion. In addition, some data fields were cleaned up and duplicate records were removed. A longer description of this process will be provided at a later date. In the end, member governments provided 4508 unique records for the CASA project.

Next Steps

Due to the variability of the data provided, it still must be reviewed and structured to allow for better analysis. For example, the vessel types and accident types need work to combine duplicate or similar types.

In addition to the data submitted by member governments, the project lead is reviewing data from the European Marine Safety Agency (EMSA) and the International Maritime Organization (IMO) accident databases.

As requested at previous PAME/EPPR meetings, the master data sheet and the data submitted by each member government will also be provided for review by PAME and EPPR members via EPPR/PAME SharePoint sites.

Preliminary Analysis

The following is a summary and preliminary analysis of the data submitted by member governments to support the CASA project.

Raw Data Submitted by Member States

Table 1 provides a summary of the raw data submitted by Member States as of September 2018.

CY	Canada	Denmark	Norway	United States	Total
2005	3			380	383
2006	12			405	417
2007	11		1	341	353
2008	8		3	318	329
2009	14		4	321	339
2010	9	6	1	312	328
2011	3	8	3	339	353
2012	13	10	3	379	405
2013	8	7	2	318	335
2014	13	7	2	358	380
2015	14	13	4	330	361
2016	16	5	5	231	257
2017	3	10	3	252	268
Total	127	66	31	4284	4508

Table 1 – Number of Accidents by Year and Data Source Country.

Notes on Table 1:

1. Sweden and Finland had no marine accidents to report.
2. Iceland submitted data for one marine accident; however, the date of incident was not

included.

3. The data submitted by Denmark did not include data from 2005 to 2009.
4. The data submitted by Norway did not include data from 2006 to 2009.
4. Russia did not provide any accident data for this project.

To facilitate compiling and analysis of the data, the project lead made efforts to structure the data in similar fashion. For example, all of the data were placed in a spreadsheet and reviewed to ensure it was in the correct format, and duplicates entries were removed.

Time period

In the joint PAME/EPPR project proposal, member governments were requested to submit data from 2005 to 2018. Recognizing the time and effort it takes to conduct an investigation AND enter the data into a casualty database, the period of report was adjusted to 2005 to 2017. This was done to prevent incomplete data from being submitted and provide a full year of data through 2017 for comparative analysis.

Geographic scope

In the joint PAME/EPPR project proposal, it was recommended that the geographic scope align with the scope of the 2009 Arctic Marine Shipping Assessment (AMSA) Report, for which each Arctic State defined its own Arctic waters. In order to simplify the boundary conditions, all accidents occurring North of 58 degrees North Latitude were included in the final analysis. 58 degrees North latitude was chosen as the southern boundary because it was the southernmost point (58-00.0 N, 42-00.0 W) defined by the IMO Polar Code boundaries.

Table 2 provides a summary of the raw accident data after applying a filter that excludes accidents south of 58 degrees North latitude. From this point forward, the analysis will only be of data captured in Table 2. In other words, the analysis will not consider accidents which occurred south of 58 degrees North latitude.

CY	Canada	Denmark	Norway	United States	Total
2005	3			180	183
2006	10			184	194
2007	11		1	148	160
2008	8		3	140	151
2009	13		4	130	147
2010	8	6	1	142	157
2011	3	8	3	141	155
2012	13	10	3	199	225
2013	7	7	2	145	161
2014	12	7	2	170	191
2015	14	13	4	139	170
2016	15	5	5	103	128
2017	2	10	3	88	103
Total	119	66	31	1909	2125

**Table 2 - Number of Accidents by Year and Data Source Country
(ONLY Accidents North of 58 degrees North latitude)**

Incident Data

Table 3 provides a snapshot of the data provided by each member state. “Yes” means the data was provided, “No” means it was not provided. The “Incident Date” block, indicates the calendar years for the data that was provided by member states.

Member State	Incident Date	Geographic Position	Vessel Name or Identifier	Vessel Particulars (Length, Tonnage, Flag, Age, etc.)	Accident Type	Consequence data (vessel loss, death or injuries, cargo loss)	Pollution data
Canada	2005-17	Yes	Yes	Yes	Yes	Yes	Yes
Denmark	2010-17	Yes	No	Yes	Yes	Yes	Yes
Iceland	No	Yes	Yes	Yes	Yes	Yes	Yes
Norway	2007-17	Yes	No	Yes	Yes	Yes	No
U.S.	2005-17	Yes	Yes	Yes	Yes	Yes	Yes

Table 3*Incident Data by Year and Month*

Table 4 shows the accident data by year and month.

CY	January	February	March	April	May	June	July	August	September	October	November	December	Total
2005	10	13	10	10	10	20	30	35	17	11	5	12	183
2006	8	11	12	9	14	22	28	36	21	14	10	9	194
2007	9	4	13	8	8	24	37	20	15	10	7	5	160
2008	7	7	13	8	8	24	23	19	12	11	10	9	151
2009	15	8	5	4	10	16	22	27	18	8	10	4	147
2010	7	9	11	6	13	16	34	30	8	11	5	7	157
2011	7	6	9	3	14	27	22	27	18	9	5	8	155
2012	14	17	9	11	15	41	32	34	21	16	8	7	225
2013	8	6		6	22	19	36	25	13	13	7	6	161
2014	4	11	2	7	14	41	35	29	24	12	4	8	191
2015	7	3	6	10	10	30	37	37	18	7	3	2	170
2016	8	8	6	8	5	19	22	15	15	7	7	8	128
2017	4	2	12	1	13	11	23	20	8	4	4	1	103
Total	108	105	108	91	156	310	381	354	208	133	85	86	2125

Table 4

Accidents by Vessel Type

Table 5 shows the accident data by vessel type.

Vessel Type	Number of Accidents
Fishing Vessel	761
Passenger Ship	567
Towing Vessel	179
Recreational	159
Other	104
General Cargo Ship	91
Tanker Ship	65
N/A	46
Barge (General)	42
Barge (Liquid)	39
Government Vessel	23
Survey/Research	16
Barge (Deck)	9
Icebreaker	6
Cargo Ship (Refrigerated)	4
Barge (Unspecified)	3
Bulk Carrier	3
Refrigerated Cargo Ship	3
Barge (Other)	2
Warship	1
Barge (Passenger)	1
Cargo Ship	1
Service Ship	1
Grand Total	2126

Table 5

Accident Types

Table 6 shows the accident data by accident/event type.

Accident/Event Type	Number of Accidents
Discharge/Release of Pollution	618
Equipment failure/ Hazard to navigation	367
Equipment failure	263
Grounding	244
Collision	118
Loss of electrical power	96
Sinking	90
Flooding	71
Allision	64
Fire	59
Fouling/Equipment failure/Hazard to Nav	27
Capsize	19
Set Adrift	15
Bottom Contact	14
N/A salvage	13
Explosion	7
Contact	6
Fire/Explosion	6
Risk of Sinking	5
Other	5
Dangerous goods released	4
Vessel Maneuver	3
Wave Strikes/Impacts	2
Fouling	2
Abandonment	1
Loss of control	1
Damage to ship or equipment	1
Vessel Yawl/Pitch/Roll/Heel	1
Risk of Allision	1
Damage to Cargo	1
Well Blowout	1
Loss of Cargo	1
Grand Total	2126

Recommendation

The USA recommends that PAME II-2018 adopt the following ROD:

“PAME invites members to review the CASA project data compiled by the USA and submit by 15 December any corrections and/or any additional they may have on ship accidents in the Arctic since 2005. PAME invites the USA to provide an update of the project at PAME I-2019, including a more detailed analysis of the accident data.”