

SNAME/TRB Marine Safety and Human Factors Activities

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CSC

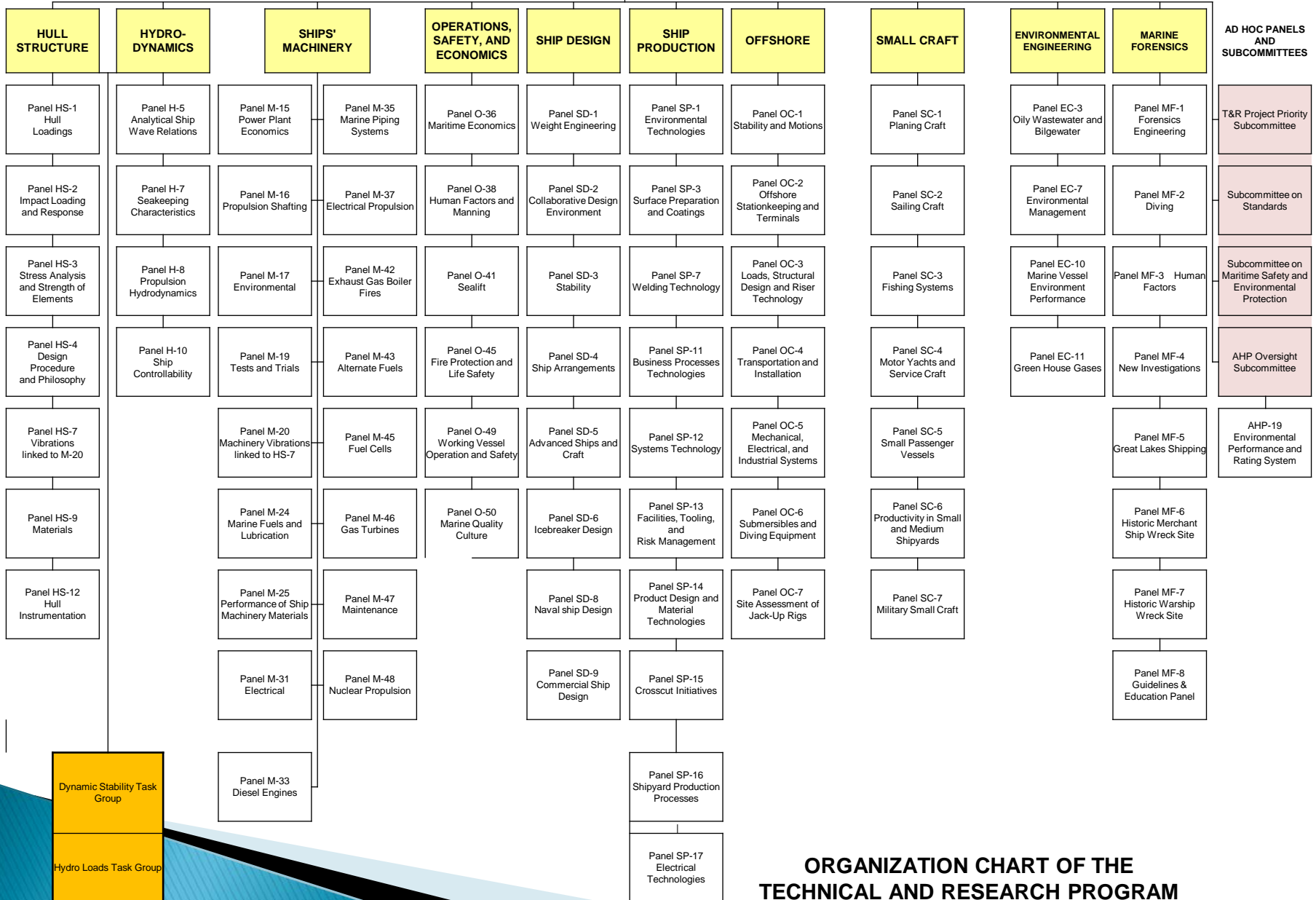
10/23/2013

Society of Naval Architects and Marine Engineers (SNAME)

- ▶ 7,000 + members
- ▶ Focus on all design, construction, and operations of ships, boats, marine structures, etc.
- ▶ Annual and monthly Section (17) meetings and focused Symposia or Workshops
- ▶ Technical and Research (T&R) program
 - 10 Technical Committees and Their Panels
 - Worldwide international contingent

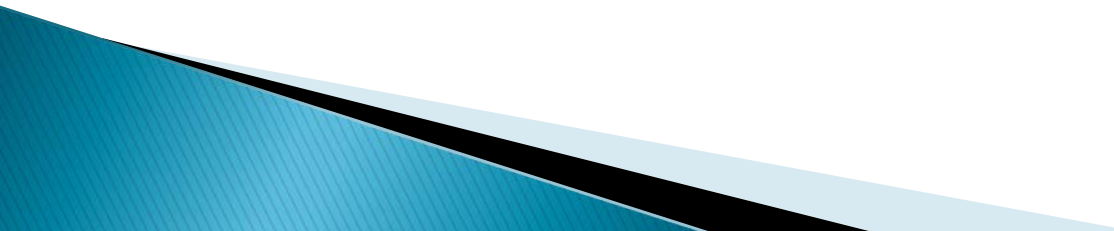
SNNAME COUNCIL AND EXECUTIVE COMMITTEE

T&R STEERING COMMITTEE

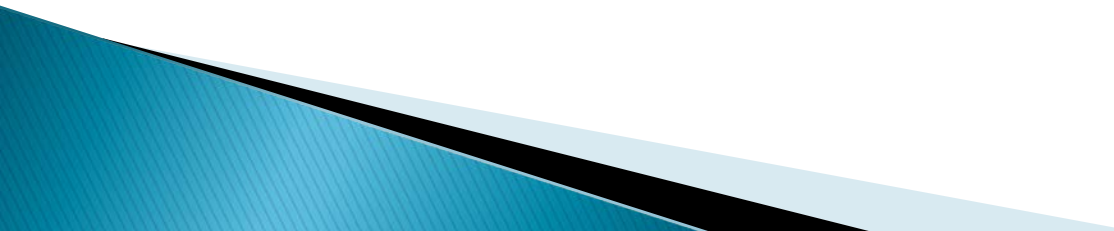


ORGANIZATION CHART OF THE TECHNICAL AND RESEARCH PROGRAM

SNAME OPERATIONS, SAFETY, AND ECONOMICS COMMITTEE

- ▶ Panel O-36 Maritime Economics
 - ▶ Panel O-38 Human Factors and Manning
 - ▶ Panel O-41 Sealift
 - ▶ Panel O-45 Fire Protection and Life Safety
 - ▶ Panel O-49 Working Vessel Operation and Safety
 - ▶ Panel O-50 Marine Quality Culture
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Transportation Research Board (TRB)

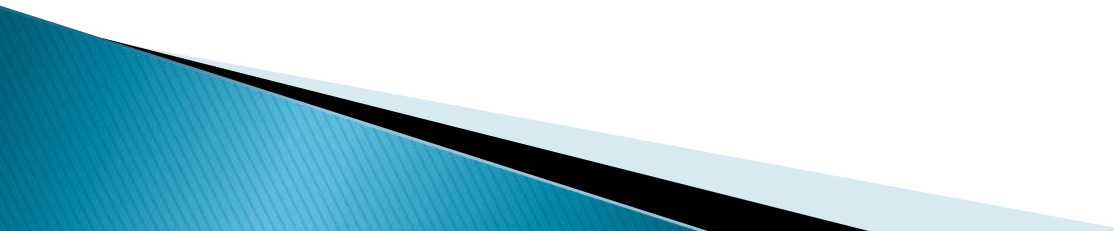
- ▶ All modes of transportation
 - ▶ National and State Departments of Transportation + International participants
 - ▶ Annual Meeting in DC, 10,000 – 11,000 people
 - ▶ Began from highways focus
 - ▶ Freight interests have blossomed in last decade
 - ▶ Committees in many areas
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TRB Maritime Activities

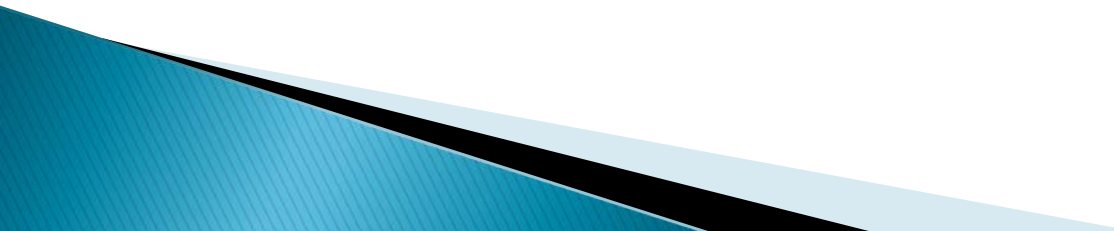
- ▶ **Code** **Committee Name**
- ▶ AP085 Ferry Transportation
- ▶ AT020 International Trade and Transportation
- ▶ AT030 Agricultural Transportation
- ▶ AT035 Military Transportation
- ▶ AT040 Transportation of Hazardous Materials
- ▶ AT045 Intermodal Freight Transport
- ▶ AT050 Intermodal Freight Terminal Design and Operations
- ▶ **AW000** Marine Group
- ▶ AW010 Ports and Channels
- ▶ AW020 Inland Water Transportation
- ▶ AW030 Marine Environment
- ▶ AW040 Marine Safety and Human Factors
- ▶ **MB000** Marine Board

TRB AW040 Committee on Marine Safety and Human Factors

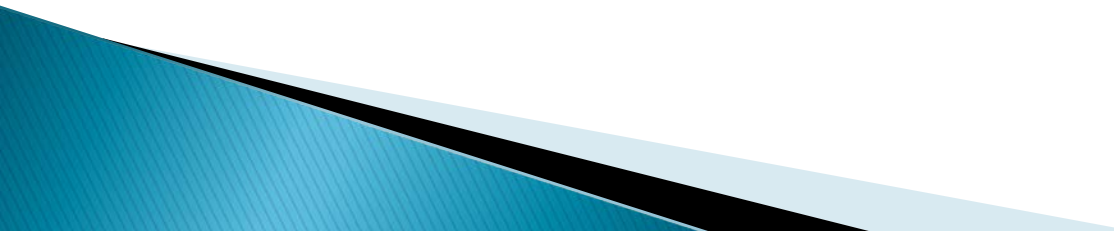
Mission is to advance and disseminate knowledge in the areas of marine safety and human factors that will benefit the transportation industry and government agencies.



History


- ▶ Organizational meeting – TRB Marine Group on January 14, 2008
 - ▶ Began activities as “Task Force”
 - ▶ Held committee meetings, developed paper/presentation sessions at Annual Meeting and in summer venue of choice
 - ▶ Full Standing Committee status approved Jan. 2011
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Activities

- ▶ Identify, document, and develop activities relating to human capital, human factors, and safety in the marine sector. In particular, address critical issues such as voluntary safety reporting, skilled personnel shortages, cultural and communication issues and ship design and automation.
 - ▶ Facilitate sharing marine safety and human factors information within the TRB, government and industry
 - ▶ Sponsor sessions and contribute papers and presentations for future TRB Annual Meetings, midyear conferences, and specialty workshops
 - ▶ Assume a leading role in planning and development of the Annual Harbor Safety Committee (HSC) Conference
 - ▶ Serve as a point of contact for the TRB, government agencies, and industry for issues relating to marine safety and human factors
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Critical Issues in Marine Safety and Human Factors

Brainstorming at organizational meeting resulted in 46 individual issues of interest falling into these areas:

- ▶ Voluntary Safety Reporting
 - ▶ Skilled Manpower Shortages
 - ▶ Ship Design and Automation
 - ▶ Safety Culture
 - ▶ Human Fatigue and Alertness
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TRB 2013 Annual Meeting

- ▶ Day Long Focused Workshop – Small group, intermodal mix, presentations, group discussions and development
 - ▶ AW040 Committee Session
 - ▶ Technical Paper Session
 - ▶ Joint Sessions with Rail Safety Committee
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Human Factors Workshop Session

Date: January 13, 2013

Title: Using Safety Data for Accident Prevention (Best Practices, *aka: “Data Cite, Data Might, how to use your safety data right”*)

Leaders:

The Honorable Robert Sumwalt, NTSB Board Member


Demetra Collia, BTS, DOT



Workshop Description

- ▶ Accidents can and do occur. How to prevent them from occurring or managing the risk level to a minimum is the challenge. **“Safety data” to guide the development of preventative design and operational practices** begins with information from accidents. The gathering of data on accident precursors and the general solicitation of information from those who have observed the potential for accidents is a growing source of valuable safety data useful for prevention analysis. This workshop session will **explore best practices and the development of a primer concerning how best to use safety data**. Issues to be addressed include the need for good exposure data, the combining of information from accidents with softer data such as precursor and voluntary reporting metrics, and the challenge of including the knowledge from critical data elements that are not being collected such as various human factors elements. It is believed that a **primer is needed to address these issues to help with the use of safety data by the many experienced and novice researchers** who attempt to conclude best prevention strategies using the publically available data such as that becoming easily available through internet sources such as www.safety.data.gov and privately collected data.

Format

- ▶ One of 10 different sessions on human factors
 - ▶ Full day of discussions with break for luncheon speaker
 - ▶ Participants – 20 to 30 maximum
 - ▶ Presentations to stimulate
 - ▶ Group discussions to determine direction
 - ▶ Plan to produce Primer on Use of Safety Data
 - ▶ Development of paper or follow-on activity to further pursue efforts
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TRB Paper Session – Maritime Accidents: Causation Analysis and Modeling and Simulation of Human Behavior

Spatial Analysis of Maritime Accidents Using Geographic Information System

Dao-zheng Huang, Shanghai Jiaotong University, China

Hao Hu, Shanghai Jiao Tong University, China

Yi-zhou Li, Shanghai Jiaotong University, China

Probability Analysis of Damage to Offshore Pipeline by Ship Factors

Yutao Liu, Shanghai Jiaotong University, China

Hao Hu, Shanghai Jiao Tong University, China

Modeling Human Behavior in Vessel Maneuver Simulation by Optimal Control and Game Theory

Serge Hoogendoorn, TU Delft, Netherlands

Winnie Daamen, Delft University of Technology, Netherlands

Yaqing Shu, Delft University of Technology, Netherlands

Han Ligteringen, Delft University of Technology, Netherland

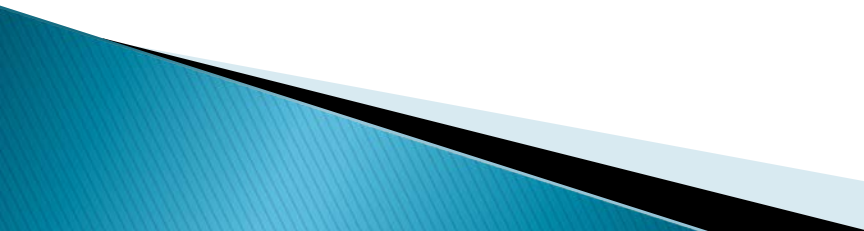
Analysis and Simulation of Istanbul Strait Marine Traffic Management Strategies

Fahrettin Eldemir, Yildiz Technical University

Fatih Camci, Cranfield University, United Kingdom

Özgül Hysal, Fatih University

AW040 Committee Meeting

- ▶ **Are Mariner Near Misses Influencing Design?**
Kevin P McSweeney, American Bureau of Shipping
 - ▶ **Modelling Human Choice Behaviour in Agent-Based Systems**
Geert Tasseron, Karel Martens, and Rob van der Heijden, Radboud University Nijmegen, Netherlands
 - ▶ **Committee discussions focused on next steps**
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Questions

<http://www.trb.org/AnnualMeeting2013/AnnualMeeting2013.a.spx>

AW040 Activities

Bring together safety researchers and operating personnel from the marine sector to identify critical issues and to define, support, and disseminate results of research aimed at enhancing the performance, safety, efficiency, and comfort of those involved in and/or using marine transportation systems. Scope includes:

- ▶ The human's role in the operation and control of the full range of marine vessels, vessel management, maintenance, and protection of harbor, coastal and riverine areas
- ▶ The health, safety, and quality of life of those who operate and maintain these vessels
- ▶ The comfort and safety of marine transportation system users
- ▶ The human impact of water transportation and port operations on neighboring communities.

Objectives

- ▶ Provide a forum for sharing information and research related to marine safety and human factors in marine operations.
 - ▶ Identify emerging performance and safety issues and technologies relevant to vessel and harbor operations, for both freight and passengers
 - ▶ Act as a resource to the marine industry and other organizations involved in the development and operation of water transportation
 - ▶ Develop technical exchange sessions to advance marine safety and better understand and address human factors issues
 - ▶ Develop and disseminate research needs statements
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