

**TRIENNIAL STRATEGIC PLAN (TSP)****Period: 2018 -2021****PART 1: Committee Name and Scope**

Committee Code *	AW030
Committee Name *	Standing Committee on Marine Environment
- Date(s) reviewed	1/31/2018
- Change, if proposed***	
- No. of official members approving change/total number of members **	
Committee Scope *	The committee considers the environmental performance of the maritime transportation system including ports, vessels, waterways and other maritime activities. These components of the maritime system can best be understood in the context of the efficient movement of goods and people in the regional and national economy. Working in coordination with other TRB committees and task forces, the Committee considers the impact of waterborne transportation and other modes of transportation on the marine environment.
- Date(s) reviewed	1/31/2018
- Change, if proposed ***	
- No. of official members approving change/total number of members **	

\* Show current, as it currently appears in the [TRB Online Directory](#)

\*\* Includes Chair, Standing Committee Members, Emeritus Members, and Young Members

\*\*\* Show proposed, or Not Applicable

**PART 2: Committee History**

**2.1 Meeting Attendance Summary**

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>Number of Members in Attendance at Annual Meeting</b>	13	15	11	8	8	12	10			
<b>Number of Visitors in Attendance at Annual Meeting</b>	14	12	20	18	18	15	13			
<b>Number of Papers Reviewed</b>	11	10	10	6	6	6	5			
<b>Total Number in Attendance at Mid-Year Meeting</b>	N/A	12	3	8	8	N/A	11/16 <sup>1</sup>			

1. Joint meeting with AW020 (AW030 data is numerator; AW020 data is denominator)

**2.2 Sessions and Workshops Sponsored At Annual and Mid-Year Meeting**

Sessions and workshops sponsored/cosponsored at the Mid-Year meeting, including name of co-sponsoring committee(s) if applicable (by year):

**See below.**

<b>Annual Meeting Activities</b>	
<b>2018</b>	
<b>Session Number &amp; Name</b>	<b>Number of Podium Sessions: 2 + 1 (Young Members Council) Number of Poster Sessions: 0      Workshops: 0</b>
<b>Session 629 (Lectern)</b>	Making Environmental Protection and Resilience Work Together in the Coastal Environment P18-20637 Comprehensive Resiliency Planning in the Wake of Harvey: Public-Private-Sector Collaboration (Rolf E Stromberg) P18-20640 The Port Is Open: Lessons from Hurricanes Irma and Maria in the Caribbean (Lena Maun-DeSantis) P18-20644 New Reality in Hurricane Response: Resiliency Planning at Ports (Elena Craft) P18-20646 Increasing the Resilience of Coastal and Marine Infrastructure Through Bioenhancement (Andrew J Rella)
<b>Session 368 (Hybrid)</b>	Freight Systems and Marine Transportation Work-in-Progress—Hybrid Session for Freight and Marine Young Members Council P18-20774 Lightning Talk: Application of Parallel Evolutionary Algorithms for Improving Efficiency of the Seaside Operations at Marine Container Terminals (Maxim A Dulebenets) P18-20779 Lightning Talk: Advanced AIS Analysis (Edward Carr) Eleven posters presented also – hybrid poster and lightning talks
<b>Session 238 (Lectern)</b>	Clearing the Air Around Ports 18-00608 A Taxonomy of Carbon Emission Reduction Measures in Waterborne Freight Transportation (Georgios Panagakos, Harilaos Psaraftis) 18-06383 Evaluation of the Health Impacts of Rolling Back a Port Clean Trucks Program (Dana Rowangould, Gregory Rowangould, Debbie Niemeier) 18-06718 Prospects of Cold Ironing as an Emissions Reduction Option (Thalis Zis)
<b>2017</b>	
<b>Session Number &amp; Name</b>	<b>Number of Podium Sessions: 2 Number of Poster Sessions: 1      Workshops: 1</b>
<b>Session 880 (Lectern)</b>	Ocean Shipping and the Environment 17-00280 Evaluation of Various Carbon Dioxide Taxation Schemes in Liner Shipping (Maxim Dulebenets) 17-03799 Effects Evaluation of Emission Control Areas: Case Study of Shanghai Port in China (Zeru Qin, Jingbo Yin) 17-04840 Implications of Lower Sulfur Limits in the European Ro-Ro Sector (Thalis Zis, Harilaos Psaraftis)

Annual Meeting Activities	
<b>Session 682 (Lectern)</b>	Environmental Innovation as Part of Port Expansion P17-21764 Viewpoint from the Port of Baltimore (Barbara McMahon) P17-21767 Viewpoint from the Port of Los Angeles (Chris Cannon) P17-22134 Viewpoint from the Duluth Seaway Port Authority (Jim Sharrow)
<b>Session 267 (Poster)</b>	Current Research on the Marine Environment 17-00270 Green Vessel Scheduling in Liner Shipping: Modeling Transit Time Requirements in a Route with Emission Control Areas (Maxim Dulebenets) 17-06918 Northern Sea Route and Its Impact on the Natural Environment (Hui Zhao, Hao Hu)
<b>Session 193 (Workshop)</b>	Sustainable Gateways: Ensuring Clean, Safe, and Reliable Port Gateways for the 21st Century P17-20989 Welcome and Purpose of Workshop (James J Winebrake) P17-20990 Overview on Sustainable Gateways (James J Corbett)
<b>2016</b>	
Session Number & Name	Number of Podium Sessions: 2 Number of Poster Sessions: 1                      Workshops: 0
<b>Session 330 (Lectern)</b>	16-4399 Laboratory Study of SediMeters in Determining Turbulent Sediment Accumulation During Dredging Operations (Charles McKenzie) 16-5686 Payback Period for Emission Abatement Alternatives: Role of Regulation and Fuel Prices (Thalis Zis, Panagiotis Angeloudis, Mike Bell)
<b>Session 776 (Lectern)</b>	Current Research on the Marine Environment: Liquefied Natural Gas as Marine Fuel 16-3325 Novel Model for Development-Level Analysis of LNG-Fueled Ships (Chengpeng Wan, Xiping Yan, Di Zhang, Bing Pu) 16-3814 Liquefied Natural Gas Bunkering by Vessel in the Great Lakes: Analysis of Regulatory and Operational Issues (Richard Stewart) 16-6317 Assessment of Potential Emissions from LNG as a Marine Fuel in the Inland Rivers (Edward Carr, James Corbett) P16-0259 Natural Gas as a Marine Fuel (James Winebrake)
<b>Session 708 (Lectern)</b>	Sustainable Development Where Rivers Meet Open Water P16-1803 Land Use and River Estuaries (Allegra Cangelosi) P16-1805 Great Lakes Ports (Richard Stewart) P16-2441 Coastal Ports (James Walker) P16-2442 Marine Freight Transportation (Craig Philip)
<b>Session 330 (Poster)</b>	Research on the Marine Environment 16-4399 Laboratory Study of SediMeters in Determining Turbulent Sediment Accumulation During Dredging Operations (Charles Mckenzie) 16-5686 Payback Period for Emission Abatement Alternatives: Role of Regulation and Fuel Prices (Thalis Zis, Panagiotis Angeloudis, Mike Bell, Harilaos Psaraftis)
<b>2015</b>	
Session Number & Name	Number of Podium Sessions: 3 Number of Poster Sessions: N/A                      Workshops: 0
<b>Session 294 (Lectern)</b>	Liquefied Natural Gas as a Marine Fuel: Operations and Infrastructure P15-6387 Port and Terminal Operations (Richard D Stewart) P15-6389 Vessel Operations (James J Corbett)
<b>Session 635 (Lectern)</b>	Environmental Implications of Marine-Based Energy Production P15-5658 Impact Versus Effect: A Look at Environmental Consequences of Offshore Wind (Mary Boatman) P15-5659 Emissions Life Cycle of Liquid Natural Gas (James J Corbett, James J. Winebrake) P15-5663 General Introduction to Environmental Implications of Marine-Based Energy Production (Ben Chicoski)
<b>Session 706 (Lectern)</b>	Current Issues in International Ocean Shipping 15-4652 Environmental Balance of Shipping Emission Reduction Strategies (Thalis Zis, Robin J. North, Panagiotis Angeloudis, Washington Y. Ochieng, Michael G Bell)

Annual Meeting Activities	
2014	
Session Number & Name	Number of Podium Sessions: 3 + Committee Number of Poster Sessions: N/A      Workshops: 0
<b>AW030 Committee</b>	14-4082 Optimal Dredge Fleet Scheduling within Environmental Work Windows (Heather Nachtmann, Kenneth Ned Mitchell, Chase Rainwater, Ridvan Gedik, Edward Pohl)
<b>Session 184 (Lectern)</b>	Reducing Evaporative Emissions in Marine Transportation P14-5514 Barge Emission Estimates (Rick Baker, ERG) P14-5789 Establishing Performance Benchmarks and Broad-Scale Strategies to Reduce Pollution Hot Spots: Focus on Ports (Elena Craft, EDF) P14-5792 Comparing Sources of Marine Emissions (Haifeng Wang, University of Delaware) P14-7083 The American Waterways Operators Tank Barge Best Management Practices – an industry case study (Brian Vahey)
<b>Session 849 (Lectern)</b>	Environmental Aspects of Air Emissions from Marine Sources 14-1158 Explaining Participation in Voluntary Vessel Emission Reduction Programs at the Ports of Los Angeles and Long Beach (Alison Linder) 14-2236 Long-Term Potential to Reduce CO2 Emissions from International Shipping Through Adoption of Best Energy Efficiency Practices (Haifeng Wang, Nicholas Lutsey) 14-4648 Effects of Speed Reduction Policies near Ports (Thalis Zis, Robin J. North, Panagiotis Angeloudis, Washington Y. Ochieng, Michael G.H. Bell) P14-5573 Overview of Use of Automatic Identification System Data to Improve Spatial Representation of Commercial Marine Vessel Emissions (Richard Billings, Heather Perez, Jennifer Sellers, Holli Ensz)
<b>Session 373 (Lectern)</b>	Current Environmental Issues in Marine Transportation 14-0633 Stormwater Treatment Strategy for Port Pavement Runoff (Michael Thompson, Liv Haselbach, Cara Poor) 14-0918 Sustainable Watershed Management Principles Within Panama Canal Watershed (Daniel Cain, Frank Falcone, Emilio Messina, Seri Park) 14-3542 Ship Emissions Inventory and Social Cost in Shanghai Yangshan Port (Su Song)

### 2.3

**Provide** title(s) and presenter(s) for informal presentations made at Annual Meeting and Mid-Year Committee meetings:

2018 AM: “Update on the Ports Initiative, including EPA’s Port Everglades Emission Inventory Partnership” – Daniel Bizer-Cox, EPA

2017 AM: “Update on EPA Ports Initiative, including National Port Strategy Assessment” - Ben VanGessel, EPA

2016 AM: “Innovations in the inland marine industry” - : Ed Shearer - The Shearer Group, Inc.

2015 AM: “Developments, Trends and New Challenges in Port Environmental Management – the COMPETE Project”—S. Theofanis, A. Naniopoulos, G. Palantzas, M. Boile

2015 AM: “Committee on Marine Transportation System” – Helen Brohl

### 2.4

**Provide** titles of new research need statements (RNS) posted in TRB’s RNS database (by year):

RNS Title	Year
<b>Marine Transportation, Air Quality and Human Health</b>	2018
<b>Emissions and Ecological Impacts of Panama Canal Expansion and Nicaragua Canal Construction</b>	2018
<b>Marine Vessel Emission Inventory Tool</b>	2017
<b>Marine Transportation and Underwater Sound Impacts</b>	2017

<b>Marine Transportation of Invasive Species</b>	2017
<b>Climate Vulnerability Assessment and Mitigation Options</b>	2017
<b>Marine Fuels Conservation</b>	2017
<b>Assessment of Dredging Impacts and Options to Mitigate Impacts</b>	2017
<b>Marine Transportation and the Arctic Tracking Air Quality and Ecosystem Trends</b>	2017
<b>Alternative Marine Fuels</b>	2017
<b>Marine Fuel, Exhaust, and Energy Regulation Compendium</b>	2017
<b>Offshore Energy Marine Environmental Impacts</b>	2017
<b>Point and Non-point Water Pollution Sources</b>	2017
<b>Controlling Air Emissions At Marine Port Terminal Operations</b>	2007
<b>Marine Environmental Windows: Beyond Process to Performance</b>	2007

## 2.5

**Provide** title(s) of RNS submitted for funding consideration:

NOTE: If funded, include research project title/number and name of funding organization(s).

Submitted 2018:

1. Marine Transportation, Air Quality and Human Health
2. Emissions and Ecological Impacts of Panama Canal Expansion and Nicaragua Canal Construction
3. Marine Vessel Emission Inventory Tool
4. Marine Transportation and Underwater Sound Impacts
5. Marine Transportation of Invasive Species
6. Climate Vulnerability Assessment and Mitigation Options
7. Marine Fuels Conservation
8. Assessment of Dredging Impacts and Options to Mitigate Impacts
9. Marine Transportation and the Arctic Tracking Air Quality and Ecosystem Trends
10. Alternative Marine Fuels
11. Marine Fuel, Exhaust, and Energy Regulation Compendium
12. Offshore Energy Marine Environmental Impacts
13. Point and Non-point Water Pollution Sources

## 2.6

**Provide** titles of synthesis topics submitted (by year):

NOTE: **List** any synthesis topic(s) funded in a research program.

No specific synthesis reports associated with AW030 sponsorship.

## 2.7

Membership Make-up:

As of January 2018, AW030 consisted of 31 members.

TRB's committee rules allow for a total of 25 Regular Members, 2 State Department of Transportation Members, 5 International Members, and 4 Young Members (younger than 35 years old) for a total committee membership of 36 persons.

As of January 2018, AW030 could add 2 Regular Members, 1 International Members, 2 State Department of Transportation Member, and 0 Young Member Slots. The committee membership’s next rotation will occur in April 2019.

MEMBERSHIP TYPES	2017	2018	2019	2020	2021
Regular Member	11	23			
State Department of Transportation Member	0	0			
International Member	2	4			
Young Member	3	4			
<b>GENDER</b>					
Male	8	20			
Female	7	11			
<b>DIVERSITY</b>					
White	11	18			
Black	0	0			
Hispanic	0	1			
Asian or Pacific Islander	0	0			
American Indian	0	0			
Two or More Races	0	0			
Unknown	5	12			
<b>MEMBER AFFILIATION</b>					
Public-Sector	5	4			
Private-Sector	6	11			
Academia	1	13			
Nonprofit/Other	4	3			

**2.8**

Provide any of the following:

- Any special publications, such as TR circular, and conference proceedings
- Sponsored or co-sponsored specialty conferences, symposia, workshops, webinars or other joint efforts with other TRB committees, other TRB entities, or other organizations (i.e. AASHTO, FHWA, State DOTs, ASTM, ASCE, and/or other modes of transportation)

1. Several committee members wrote an article for the March 2018 edition of TR News: “Trends and Issues in Marine Transportation and the Environment”
2. TR Circular E-206: Trends and Issues in Marine Transportation and the Environment (April 2016)
3. No report of specialty conferences, symposia, workshops, webinars, or joint efforts in 2017.

### **PART 3: Committee Future Outlook Statement and Committee Three-Year Plan (Limit 1,500 words total)**

#### **Committee Future Outlook Statement**

*The committee future outlook statement should include a discussion of the primary factors and influences that will shape the transportation community and topic(s) within the committee's scope over the short- (one to three years) and long-term (four to seven years). This statement should include:*

- *identification of emerging, critical, and cross-cutting issues **within the committee scope** (these issues could have been identified by the committee, Section, Group, Technical Activities Council, TRB Executive Committee, or other transportation committees and organizations);*
- *identification of emerging, critical, and cross-cutting issues **outside the committee scope** that provide opportunities for liaison and collaborative efforts (these issues could also come from a wide range of sources).*

#### **Emerging, Critical, and Cross-Cutting Issues:**

The nation's marine transportation system (MTS)--including ports, shipping channels, terminals, vessel carriers, shippers and related landside transportation modes and facilities--operates within a natural environmental system of biological and cultural resources. This resource base is comprised of fresh and salt water; air, marsh and mudflat habitat for wildlife, birds and plants; recreational parks, refuges and trails; and maritime-related historic structures. It also influences air quality and the standard of living in communities in the areas of major freight movement corridors. The MTS plays a vital role in serving the nation, states and local communities, providing economic benefits and job security. It also serves a vital role for sustaining these environmental resources within which the system operates for public health and recreation. Another element of these two interlocking physical transportation and natural systems is a vast array of government laws and regulations that influence the performance and outcome of the relationship.

The Marine Environment Committee (MEC) identifies, evaluates, and recommends priority areas of environmental and planning research for the marine transportation industry and government agencies designed to improve performance in this complex, interrelated system and ancillary sectors. We also consider information that may anticipate new regulations, technology, or other developments that could affect the Marine Environment through disruptive or constructive means.

The principal objectives of the MEC are:

1. Foster the integration of information developed across the wide range of scientific and professional practice disciplines that are relevant to maritime environmental issues.
2. Promote, encourage, and disseminate research and policy analyses.
3. Disseminate sustainable practice information to encourage adoption of new technologies and operational changes that can improve environmental performance and energy conservation.
4. Consider tradeoffs among the various potential environmental, economic, and societal impacts.
5. Liaise with the interrelated TRB committees to develop reciprocal relationships that promote the exchange of member expertise and advance the reputation of the larger TRB organization.

The Committee coordinates where appropriate with the following Marine Group committees, each of which has a common set of goals to increase the efficiency of the river system for economic and environmental production. We seek members and friends who can serve as liaisons. Committees for liaison include but are not limited to:

- i. AP085: [Standing Committee on Ferry Transportation](#)

- ii. AW010: [Standing Committee on Ports and Channels](#)
- iii. AT030: [Standing Committee on Agriculture and Food Transportation](#)
- iv. AT045: [Standing Committee on Intermodal Freight Transport](#)
- v. AW020: [Standing Committee on Inland Water Transportation](#)
- vi. AW040: [Standing Committee on Marine Safety and Human Factors](#)
- vii. AT035: [Standing Committee on Military Transportation](#)
- viii. AT020: [Standing Committee on International Trade and Transportation](#)

The Committee coordinates where appropriate with the following Environmental committees, each of which offers specialized environmental focus that affects the marine environment. We seek members and friends who can serve as liaisons for the following committees:

- i. ADC20: [Standing Committee on Transportation and Air Quality](#)
- ii. ADC70: [Standing Committee on Transportation Energy](#)
- iii. ADC80: [Standing Committee on Alternative Transportation Fuels and Technologies](#)
- iv. AL050: [Standing Committee on Environmental Issues in Transportation Law](#)
- v. AFB65: [Standing Committee on Stormwater](#)
- vi. ADC10: [Standing Committee on Environmental Analysis in Transportation](#)

### **Committee Three-Year Plan**

*The committee plan is a short, focused statement of where the committee wants to go and how to get there. The committee plan may include, but is not limited to: **projects, activities and products** that the committee will undertake during the next three years to address the emerging, critical, and cross-cutting issues identified above;*

- *How the current or proposed changed membership composition will respond to issues identified above;*
- *strategies to encourage significant involvement by the committee's Young Members, state DOT members, and other key constituents, both during committee meetings and at other times;*
- *committee's communication activities, and efforts to provide assistance and technology transfer to the transportation community;*
- *research – for the TRB committees, “research” is a very broad concept that can begin with providing the user perspective on research needs, writing research needs statements, tracking research, understanding the funding available for research in their topic area, developing case studies, lessons learned, disseminating research, technology transfer, and other activities that will advance the state of the practice. Potential research activities are:*
  - *research directions, results, and needs or gaps;*
  - *plan for maintaining and augmenting the Research Need Statements (RNS) database;*
  - *efforts to address research implementation and user needs, and ways to identify research use and implementation.*

The Marine Environment Committee establishes the following strategic goals for the next three years:

1. Develop and implement a recruitment plan to increase committee membership to 25 members, with particular emphasis on increasing participant diversity.
  - a. Metrics:
    - i. Designate a membership coordinator who will greet attendees at meetings, and coordinate members and friends who will liaise other committees
    - ii. Identify expertise among members and friends using a survey instrument
    - iii. Align expertise and interests with committees listed in goal 4



- iv. Maintain informal and interim diversity notes for better recruiting
    - b. Milestone(s) annually:
      - i. Provide a list of members who are due or selected for rotation off
      - ii. List friends who may rotate on, and sort by areas of interest/expertise
      - iii. Identify and coordinate with other committee chair(s) who may engage members fit for recruiting to MEC.
- 2. Develop research needs statements, synthesis topics, and calls for papers based on the critical issues identified above.
  - a. Metrics:
    - i. Number and breadth of RNS submitted
    - ii. Synthesis topic submitted
    - iii. Call for paper – including a joint call
  - b. Milestone(s) annually:
    - i. At least three on RNS,
    - ii. one synthesis topic, and
    - iii. one call for papers each year
- 3. Advocate for research necessary to address the critical issues identified above and to demonstrate stewardship of the marine environment.
  - a. Metrics:
    - i. Member/Friend reports of opportunity and engagement
    - ii. Respond to TRB opportunities for paper calls, synthesis ideas, etc.
    - iii. Member engagement in NAS/TRB/Marine Board special committees
- 4. Interact and coordinate with marine domain committees and key environmental issues committees related to Marine Environment. See Committee Future Outlook Statement, above, for specific committees to engage.
  - a. Metrics:
    - i. Liaison reports at Annual and mid-year committee meetings
    - ii. Members who serve on other committees
    - iii. Friends who serve on other committees
  - b. Milestone(s):
    - i. Establish liaisons and solicit reports from at least 3 marine committees
    - ii. Establish liaisons and solicit reports from at least 3 environmental committees