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Thank you, Chairman Maloney, Ranking Member Gibbs, and distinguished members of the Coast Guard and Maritime Transportation Subcommittee. It is an honor to appear before you to discuss "Commercial and Passenger Vessel Safety: Challenges and Opportunities."

Having served 36 years in the U.S. Coast Guard, retiring in 2012 at the rank of Vice Admiral and Deputy Commandant for Operations and having worked on a broad range of Coast Guard operational missions with a particular focus on maritime safety, my entire professional life's work has been devoted to marine safety.

I am currently the Senior Vice President for Global Maritime Policy for the Cruise Lines International Association (CLIA), which is the world's largest cruise industry trade association representing more than 95 percent of the global cruise capacity. CLIA represents 36 oceangoing cruise lines as well as 15,000 travel agencies, including the largest agency hosts, franchises and consortia, 30,000 travel agents, and 300 industry partners who provide products and services to the cruise industry.

Thirty million passengers are expected to cruise in 2019 globally, and nearly half of those passengers are sourced or cruise from the U.S. The number of people enjoying cruise vacations has increased, on average, by more than one million new cruisers every year over the last decade. It is safe to say that cruising is one of the most popular vacation experiences. The industry enjoys a high customer satisfaction rate with nearly 90 percent of cruisers saying they will cruise again. Fifty-two percent of vacationers who have never cruised say they are open to a cruise holiday. Families and other groups often cruise on an annual basis, booking the next trip during their cruise or immediately upon returning to port. These individuals appreciate the convenience of cruising and feel safe while doing so.

CLIA promotes the policies and practices that foster a safe, secure, healthy and sustainable cruise ship environment for our guests and crewmembers. Our Cruise Line Members participate in ongoing, specialized committees, working groups, task forces and other forums to develop and promote industry-wide policies. CLIA and its members routinely meet with regulators and enforcement officials to promote efficiency and best practices throughout the world. Through these varied groups, and aided by a professional technical staff, consultants, and maritime authorities, our members share information, review and assist in developing applicable national and international legal requirements, and identify best industry practices for all to adopt.

CRUISE LINE SAFETY

Safety of passengers and crew is the cruise industry's number one priority! Providing a safe, secure, healthy and sustainable cruise ship environment is fundamental to the success of the cruise industry.

Cruise ships are among the most scrutinized vessels at sea. Using comprehensive design, construction and operating standards developed at the International Maritime Organization (IMO), flag and port State authorities, and vessel classification societies provide strict safety oversight throughout a ship's operational life. IMO member States (nations) have implemented the International Convention for the Safety of Life at Sea (SOLAS), which is designed to help ensure maritime security and safety worldwide. Among other criteria, SOLAS also provides that companies and vessels should comply with the requirements of the International Safety Management Code (ISM Code), which was first adopted by IMO in 1993.

In addition to safety standards, the cruise industry follows comprehensive security protocols, both prior to departure and at sea. Passengers, crew, and baggage must pass through rigorous security checkpoints before boarding. In addition to video surveillance and around-the-clock onboard emergency contacts, cruise ships keep an official manifest that lists everyone onboard. Proof of identity is required to access a cruise ship, and only crew, ticketed passengers and those on a pre-approved list may enter.

Every cruise ship must be equipped with enough survival craft, including lifeboats and liferafts, to accommodate at least 125 percent of the number of persons on board. In addition, all survival craft must meet rigorous mandatory international standards in design, construction, maintenance and operations.

Crewmembers receive robust training in safety, security and first aid to prevent and respond to potential emergency situations. Ship security personnel are on call 24/7. Major cruise lines have sophisticated security departments which in many cases are run by former federal, state and military law enforcement officials. Every ship sailing to or from the U.S. must have at least one crewmember onboard specifically trained in crime prevention, detection, and reporting.

As evidenced in a study titled *Report on Operational Incidents 2009 to 2018*, G.P. Wild (International) Limited concluded that significant operational incidents have been reduced by 33 percent over the last ten years. (Operational incidents include such events as: fire, engine failure, collisions, groundings.) Other key findings include:

- *"From 2009 to 2018, significant operational incidents have been on a downward trend with an average of 18.2 incidents a year...."*
- *"An average of 20 minor operational incidents are reported from 2009 to 2018, a figure which is also declining. It is noteworthy that the figure of 15 incidents in 2018 and 16 in 2017 were the lowest recorded in the ten years covered by this report."*

Onboard staff must be trained in first aid and public health practices, as well as in emergency procedures, signals and alarms; evacuation procedures; and fire prevention and fire safety.

CLIA and its Cruise Line Members constantly work to improve safety by reviewing operational procedures to enhance both processes and technology. With new policies implemented and ongoing work with an Independent Panel of Experts comprised of top maritime and transportation professionals to provide advice on measures to enhance safety, the cruise industry is always looking to improve and is doing so.

CVSSA IMPLEMENTATION

In 2010, Congress passed the Cruise Vessel Security and Safety Act (CVSSA) with the support of the cruise industry. With a record 30 million passengers now cruising, the industry goes to great lengths to maintain the safety and security of passengers and crew. As a result, cruising is safer than ever.

A recent study of crime data covering a three-year period by renowned criminologist Dr. James Alan Fox shows that there are 25 times fewer allegations of major crime (homicide, sexual assault and assault) on cruise ships than are seen with comparable data on land-based crime allegations that are tracked by the FBI. Furthermore, Dr. Fox says in his report that “cruise lines do an exceptional job of securing and providing surveillance in addition to screening their populations and generally providing a high level of security aboard ships.”

The CVSSA, along with existing laws and regulations, provides broad and stringent safety and security oversight of the cruise industry. The CVSSA was amended in 2014 to further expand public reporting of alleged incidents, which is a requirement that does not currently exist in any other travel sector. The cruise industry has embraced the requirements of the CVSSA and believes that the outcomes have benefited cruise passengers and the industry itself.

Reporting of Crimes and Missing Persons

Unlike any comparable industry ashore, cruise lines are subject to strict legal requirements for the reporting of crimes on board cruise ships. Incidents are to be reported orally, as soon as possible, to the Federal Bureau of Investigation (FBI) and a written report of an incident is to be completed as soon as possible and directed to the FBI and U.S. Coast Guard (USCG). These are tracked on an internet website maintained by the Department of Transportation. .

In addition to various operational and structural requirements to enhance shipboard security and safety, the CVSSA codified the industry’s 2007 agreement for reporting of serious incidents on cruises to or from the United States, and dramatically increased penalties for non-reporting as compared to those under the preceding regime implemented under the Ports and Waterways Safety Act. The CVSSA also requires that passengers shall have available contact information for the appropriate law enforcement authorities. All passengers and crew must have access to information regarding the locations of the U.S. embassy and consulate in each country the vessel will visit during the voyage. In addition to the CVSSA requirements, CLIA Cruise Line Members have adopted a policy that all passengers and crew are to be provided the means and assistance to contact law enforcement authorities. In addition, cruise ships sailing to or from the U.S. are

required by the CVSSA to record all complaints of crimes and thefts over \$10,000 in a log that is subject to inspection by law enforcement officials.

Beyond these U.S. legal requirements, other flag or port States have enacted additional requirements or established protocols concerning the reporting of alleged criminal activity. Also, CLIA Cruise Line Members have adopted a policy that serious incidents as defined in the 2007 agreement with the FBI and USCG, and codified by the CVSSA, are to be reported to the ship's flag State. Under this policy these serious incidents are also to be reported to local law enforcement when appropriate, depending on the specific circumstances including the location of the ship when the incident occurred.

Security Measures

Cruise lines make every effort to deter criminal activity on board their ships while also ensuring that ship security staff are prepared to effectively respond to an alleged incident. One source typically utilized to train shipboard staff is the model training standards covering crime prevention, detection, evidence preservation, and reporting of criminal activities in the international maritime environment cooperatively established by the FBI, USCG and the Maritime Administration (MARAD).

Cruise line incident response procedures are based on national (flag State) and international rules and regulations, as well as other applicable laws and/or legal directives. Cruise line procedures emphasize the responsibility of ship Security Officers to exercise best efforts to provide for the safety and welfare of passengers, crewmembers, and ships. The procedures also include requirements for ship Security Officers to effectively preserve incident evidence for investigation by the appropriate law enforcement authorities.

Medical Facilities

CLIA and its Cruise Line Members have taken a proactive role in addressing the quality of shipboard medical care. Many cruise ship physicians are members of the American College of Emergency Physicians (ACEP) and serve on that organization's Cruise Ship and Maritime Medicine Section.

As a result of cooperative efforts between experienced cruise ship physicians and ACEP, CLIA's Cruise Line Members traveling regularly on itineraries beyond the territorial waters of the coastal State, have agreed on a mandatory basis to meet or exceed the requirements of the ACEP Health Care Guidelines for Cruise Ship Medical Facilities. ACEP's guidelines address facilities, staffing, equipment and procedures. Patients requiring more comprehensive facilities or treatment are typically referred to a shoreside medical facility.

The guidelines are generally intended to foster the goals of providing reasonable emergency medical care for passengers and crew aboard cruise vessels, stabilizing patients and/or initiating reasonable diagnostic and therapeutic intervention, and facilitating the evacuation of seriously ill or injured patients when deemed necessary by a shipboard physician.

Man Overboard (MOB) Incidents

Man overboard (MOB) incidents on cruise ships are rare and unfortunate events. A recent study conducted by GP Wild analyzed man overboard (MOB) incidents involving both passengers and crew between 2009 and 2018, identifying on average 18.7 incidents per year with some fluctuations from year to year. When compared with the growth in capacity in the industry over the years analyzed, man overboard incidents were on a downward trend between 2009 and 2018:

- While number of man overboard incidents have fluctuated over this ten-year period, the number of incidents in 2018 was 23, unchanged from 2009.
- Incidence rate decreased¹ due to a 54.4 % increase in active lower berths (synonymous with a cabin's bed) during that same ten-year period.
- Passenger fatalities from man overboard incidents also decreased from 15 in 2009 to 13 in 2018.
- Crew fatalities remain around the period average of five per year, around one in every 50,000 crew serving in the fleet at any one time in 2018.
- Persons rescued remains around 25 % of fatalities; one in four is rescued.

As noted in the GP wild study, in every case where the cause of the MOB was established following a careful investigation it was found to be the result of an intentional or reckless act. MOB incidents are primarily linked to human behavior (suicide, recklessness, etc.) rather than existing ship safety features, including the minimum 42" high railings mandated by the 2010 Cruise Vessel Security and Safety Act (CVSSA).

In 2018, with 28.5 million cruise passengers globally, MOB incidents on cruise ships resulted in about one passenger fatality per 2.19 million cruise passengers annually—or 0.0456 fatalities per 100,000 cruise passengers annually. By way of comparison, recent data from the United States Centers for Disease Control and Prevention (CDC) reports² the U.S. suicide rate to be 14 events per 100,000 people annually. Given the average length of a cruise is about a week, this would equate to about 0.27 suicide events per 100,000 people per week.

Cruise ships today are the safest that ever sailed due to the enhanced rules, regulations and technological innovations that govern their design and operation. Safety regulations such as minimum railing and balcony heights, structural barriers and other requirements prevent passengers who are acting responsibly from simply falling off a cruise ship.

¹ There were 0.0000425 ($4.25 \cdot 10^{-5}$) overboard reports per active lower berth in 2018, compared to 0.0000657 ($6.57 \cdot 10^{-5}$) in 2009.

² Suicide Mortality by State, National Center for Health Statistics, U.S. Centers for Disease Control and Prevention <https://www.cdc.gov/nchs/pressroom/sosmap/suicide-mortality/suicide.htm>, last accessed August 23, 2019.

The 2010 CVSSA specifically requires cruise ships that embark or disembark passengers in the United States to use technology to capture images of passengers or detect passengers who have fallen overboard, to the extent that such technology is available. To comply with this requirement, cruise lines have invested in video surveillance systems. Several cruise lines have also installed MOB detection systems on a developmental basis in order to evaluate their effectiveness and accuracy. A principle concern in the evaluation of these systems is high false-positive rates, which can ultimately cause damage to a ship's safety culture and be counterproductive to effectively detecting instances of MOB.

The International Organization for Standardization (ISO) is working to complete a standard for MOB detection technologies, which will allow operators and other stakeholders to evaluate new and existing systems against an established set of technical criteria, to ensure that installed systems function to a high degree of accuracy and reliability. As the Coast Guard stated in their 2017 MOB report, "Once an international standard is developed with the input of all involved stakeholders, it will be easier to determine the feasibility of overboard detection technologies." CLIA fully welcomes the finalization of this ISO standard.

ENVIRONMENTAL STEWARDSHIP

The health of the cruise industry is inextricably linked to a clean and healthy marine environment. Our guests expect to sail on clean oceans and visit scenic pollution free destinations. More importantly, preserving and protecting the environment is simply the right thing to do. That is why environmental sustainability has therefore become a dominant theme in cruise line management.

Each cruise ship receives dozens of inspections each year from the ports they visit, countries where they are registered and other independent agencies, including checks of equipment and practices for waste management, emission reduction and wastewater treatment. In U.S. waters, the Environmental Protection Agency (EPA) and the U.S. Coast Guard enforce rigorous requirements on air, water, power, and waste, including provisions of the Clean Water Act. The cruise industry also participates in International Maritime Organization (IMO) working groups and committees to develop ever more stringent global regulations to protect the environment.

As previously mentioned, over 30 million passengers are expected to cruise this year. While cruise ships comprise far less than 1 percent of the global number of internationally trading ships, the cruise industry is at the forefront of developing sustainable environmental practices and innovative technologies, and has invested over \$22 billion in new energy efficient ships, technologies and cleaner fuels. Onboard, the cruise lines encourage environmental awareness by educating crew and guests regarding cruise ship environmental programs. Cruise line crewmembers take part in comprehensive training programs, and many ships employ a dedicated environmental officer who oversees the environmental program and ensures strict compliance.

With 272 oceangoing cruise ships in operation, CLIA Cruise Line Members continue to transform the modern fleet to protect the oceans, air and destinations enjoyed by millions of passengers each year by following established industry practices including operation of advanced wastewater treatment systems, innovative exhaust gas cleaning systems, energy efficiency management programs, and shoreside electricity technologies.

Emission Reductions

Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL) specifically addresses air pollution prevention requirements. Specific pollutants targeted by Annex VI include: Sulfur Oxides, Nitrogen Oxides, Greenhouse Gases and Particulate Matter. The requirements of Annex VI are implemented through US Legislation (Act to Prevent Pollution from Ships – APPS) and the related US Coast Guard and EPA regulations.

To meet these requirements, the industry has pursued sustainable environmental innovations, new technologies and alternative fuels. Among these advancements adopted by the industry has been exhaust gas cleaning systems (EGCS), which reduce sulfur oxide emissions in a ship's exhaust by as much as 98 percent, and particulate matter by well over 50 percent, including elemental and organic carbon and black carbon. Catalytic filters and other systems further reduce particulate matter by over 30% and nitrogen oxides by up to 12%. Over 68 percent of the industry's current fleet capacity utilizes EGCS to meet or exceed air emissions requirements.

The international maritime industry has also begun exploring the potential for cleaner fuels for future new builds or retrofit projects.

A cleaner fuel already being adopted by several cruise lines is liquefied natural gas (LNG). The industry has invested over \$8 billion in LNG propulsion technology due to its clean emissions profile. LNG releases virtually no Sulfur Oxides or particulates and 85 percent less Nitrogen Oxides. It also reduces CO₂ emissions by approximately 20%. Currently, 26 LNG-powered ships are on order or under construction. 75 percent of new ships not relying on LNG will have EGCS installed. In addition to design measures, cruise lines have also implemented Ship Energy Efficiency Management Plans to reduce fuel consumption and thereby limit carbon emissions.

In 2018, the IMO adopted the Initial IMO Strategy on Reduction of GHG Emissions from Ships, which established definitive levels of ambition and put the maritime industry on the pathway to reducing annual GHG emissions by at least 50 percent by 2050 as compared to 2008, while pursuing efforts towards phasing them out entirely this century. CLIA and its cruise line members have specifically committed to a first major step in support of the IMO Strategy by agreeing to reduce the carbon intensity, or rate of CO₂ emissions, by at least 40 percent by 2030, as compared to 2008. Cruise lines are actively making their fleets more energy efficient through operational practices, retrofits of equipment on existing ships, and installation of energy efficient technologies and practices on new build vessels. Development of zero-carbon fuels and

propulsion technologies for transoceanic shipping remains imperative in order to meet longer term IMO goals to decarbonize the maritime sector as soon as possible this century.

Waste Management

CLIA and its cruise line members recognize that proper waste management is fundamental to the protection of the environment. The cruise industry demonstrates its commitment to protecting the environment using a broad spectrum of waste management technologies and procedures employed on its vessels. Through the International Maritime Organization (IMO) and flag and port States, cruise lines are subject to comprehensive, consistent and uniform international standards under Annex V of MARPOL, as well as the national, state and/or local regulations that apply to all vessels. For example, the IMO Action Plan to Address Marine Plastic Litter from Ships was adopted in 2018 to formalize efforts to reduce the production of marine plastic litter by the maritime industry. Cruise lines are already taking steps to reduce the amount of plastic litter onboard with efforts such as reducing single-use plastics, banning plastic straws, and optimizing recycling methods.

To improve environmental performance, many cruise lines have installed advanced wastewater treatment systems (AWTS) that utilize tertiary-level treatment to generate effluent discharges often equivalent to the best shoreside treatment plants. CLIA members cooperate fully with national and local requirements in planning wastewater discharges where permitted and encourage the provision of adequate shoreside reception facilities for wastewater where discharge is a concern. All the industry's new ships on order are specified to have these systems, which, consistent with CLIA policy, are well beyond international requirements. Due to the efforts of highly trained waste management professionals onboard, some cruise ships repurpose 100 percent of the waste generated — by reducing, reusing, donating, recycling and converting waste into energy. Cruise lines recycle 80,000 tons of paper, plastic, aluminum and glass each year.

Energy Efficiency

CLIA and its cruise line members place a high priority on energy efficiency as part of their environmental protection programs. Innovative investments include energy-efficient engines and hull coatings that reduce friction and fuel consumption, as well as energy-saving LED lights and higher efficiency appliances. By switching to low-energy LED lights, newer cruise ships can improve lighting energy efficiency by nearly 80 percent.

To further reduce emissions, 88 percent of our industry's new ships will be fitted with shore-side electricity systems or configured to add shore-side power in the future. Currently, cruise ships may operate on shoreside electricity at 16 ports worldwide where the shoreside infrastructure supports the technology.

Social Responsibility

The industry has proactively engaged with partners who provide efficient and sustainable strategies for waste and recyclables landed ashore. Cruise industry representatives also

participate in regional ocean planning efforts with maritime stakeholders and provide direct input and feedback to address ocean management challenges and the sustainable use of oceans.

The cruise industry remains committed to wildlife and nature conservation. Cruise lines actively train their employees and educate travelers through ads and printed materials, and champion creative campaigns, to raise awareness of the crucial role consumers play in ending illegal wildlife trade. CLIA has joined these efforts by partnering with the U.S. National Park Service to develop a pilot whale mapping program in Alaska's Glacier Bay; United for Wildlife to combat illegal wildlife traffickers, and The U.S. Wildlife Trafficking Alliance to reduce the purchase and sale of illegal wildlife products.

CONTRIBUTION OF THE CRUISE INDUSTRY TO THE U.S. ECONOMY

According to the Business Research and Economic Advisors study on *The Contribution of the International Cruise Industry to the U.S. Economy in 2018*:

- *An estimated 13.09 million cruise passengers were sourced from the U.S.*
- *A total of 12.68 million cruise passengers embarked on their cruises from U.S. ports during 2018. Florida, whose ports handled 7.5 million embarkations, accounted for more than 59 percent of all U.S. cruise embarkations.*
- *The cruise lines and their passengers and crew directly spent \$23.96 billion on goods and services in the U.S., a 10.5 percent increase from 2016 and a 33 percent increase from 2010. The cruise lines spent \$19.28 billion while passengers and crew spent \$4.67 billion.*
- *Within the U.S., spending by the cruise lines with their direct suppliers was up from \$11.17 million in 2016 to \$11.74 in 2018.*
- *The cruise industry generated the direct employment of an estimated 172,326 workers with U.S. businesses, who, in return, received \$8.32 billion in wages and salaries during 2018.*
- *Including the indirect economic impacts, the spending of the cruise lines and their crew and passengers was responsible for the generation of \$52.67 billion in gross output in the U.S., a 10.3 percent increase from 2016.*
- *Including the indirect economic impacts, the spending of the cruise lines and their crew and passengers in 2018 was responsible for the generation of 421,711 jobs throughout the country.*
- *Total wages and salaries paid to these workers was \$23.15 billion*

The economic benefits of the cruise industry positively impact every state. This involves travel agency and travel agent sale of cruise bookings, and the procurement of products and services from numerous industry sectors.

Serving the Wider Maritime Industry and Communities

CLIA members strive to do their part to be positive contributors within the wider maritime community. In particular, our Member Line cruise ships routinely cooperate with Rescue Coordination Centers and serve as search and rescue resources to aid mariners in distress at sea. CLIA members actively participate in the Automated Mutual Assistance Vessel Rescue System – or AMVER – which is a worldwide voluntary reporting system sponsored by the U.S. Coast

Guard. It is a computer-based global ship-reporting system used worldwide by search and rescue authorities to arrange for assistance to persons in distress at sea. With AMVER, rescue coordinators can identify participating ships in the area of distress and divert the best-suited ship or ships to respond. CLIA members voluntarily give their time and resources to assisting those in need on the high seas, and they are often recognized for the lives they have saved at AMVER events around the world and annually by the Association for Rescue at Sea (AFRAS) held here on Capitol Hill.

CLIA members are also actively engaged in providing relief and assistance leading up to and following hurricanes and tropical storms. Following the devastation from Hurricane Maria in 2017 and Hurricane Dorian in 2019, CLIA members assisted with evacuations, temporary housing, multiple tons of pallets with food, water, medical supplies, and many other provisions, as well as millions of dollars in donations to support the efforts of non-profit international relief organizations.

Thank you again for the opportunity to provide this testimony to the Committee. I hope the information is helpful in addressing the substantial oversight and accountability of cruise lines, both in the U.S. and internationally. We remain fully and deeply committed to continuous enhancement of the safety of our guests and crewmembers, as it is without question our top priority. In addition, we will continue to be a leader in environmental stewardship in the maritime community. I look forward to answering your questions. Thank you.