



Safety Perspective

Vice Admiral (ret) Bill Burke
Chief Maritime Officer

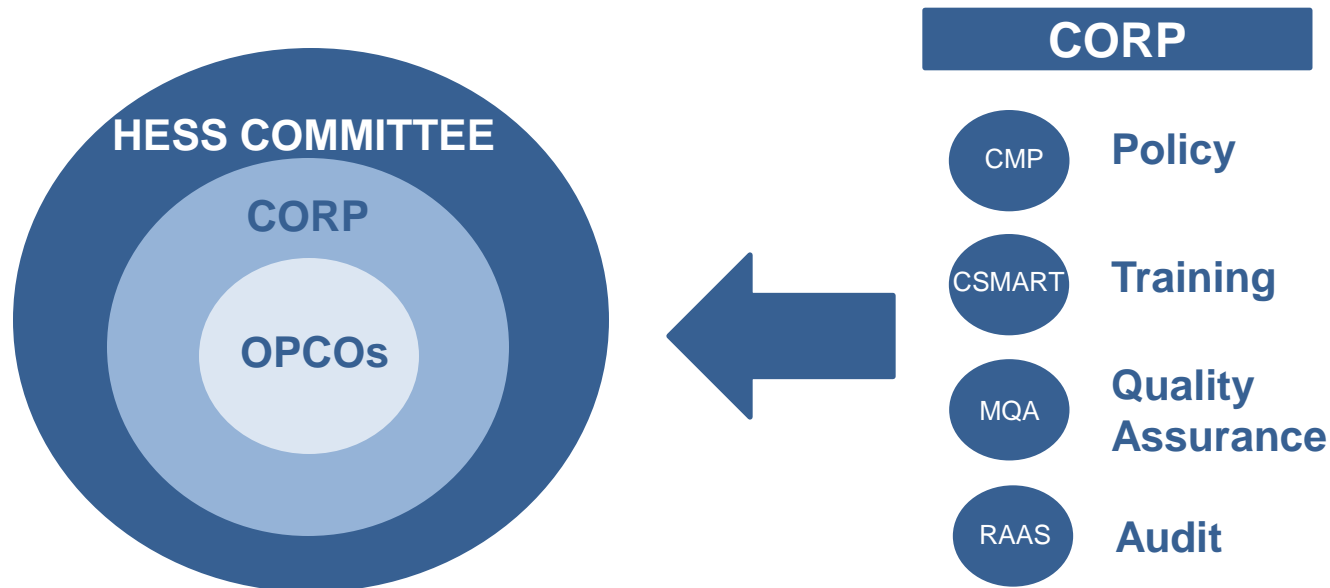
Marine Board Fall Meeting
National Academies Transportation Research Board

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Ships and Practices Built On Layers of Safety

- Regulated at international, national, state, local and port levels
 - Principal convention and entities
 - IMO (SOLAS)
 - Flag states
 - Port states
 - Class societies
- Multiple levels within Carnival Corporation



HESS Committee – Health, Environmental, Safety and Security

- Chartered in 2006
- The Health, Environmental, Safety & Security (HESS) Committee is a committee of the Board of Directors of Carnival Corporation and plc.
 - Purpose: Assist Board in fulfilling its responsibility to supervise and monitor policies, programs, initiative, results, and compliance with legal and regulatory requirements for:
 - Health
 - Environment
 - Safety
 - Security

Focus Areas

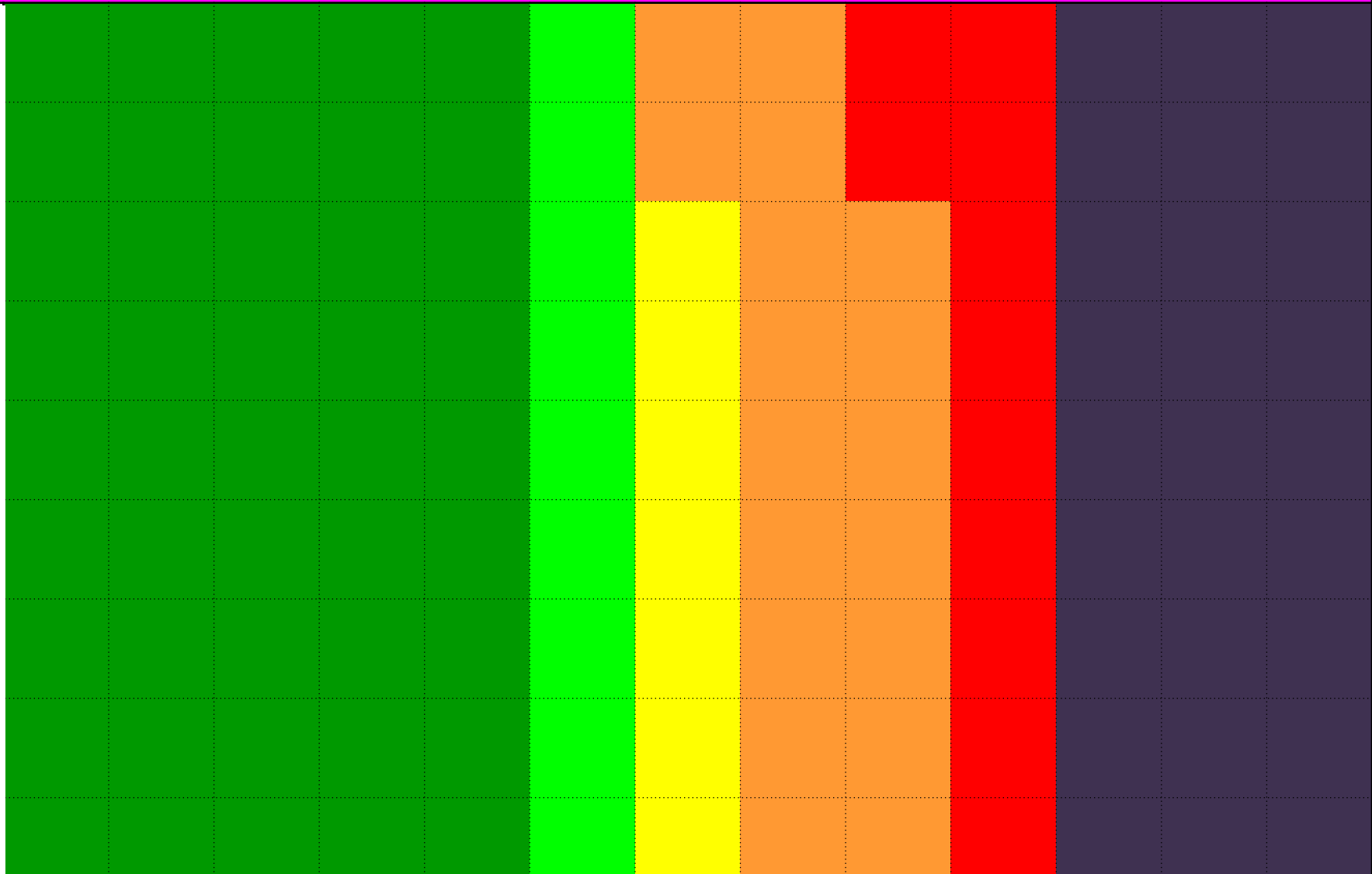
- Fire Mitigation
- Loss of Power/Essential Guest Services
- Collision/Grounding Avoidance



Risk Considerations



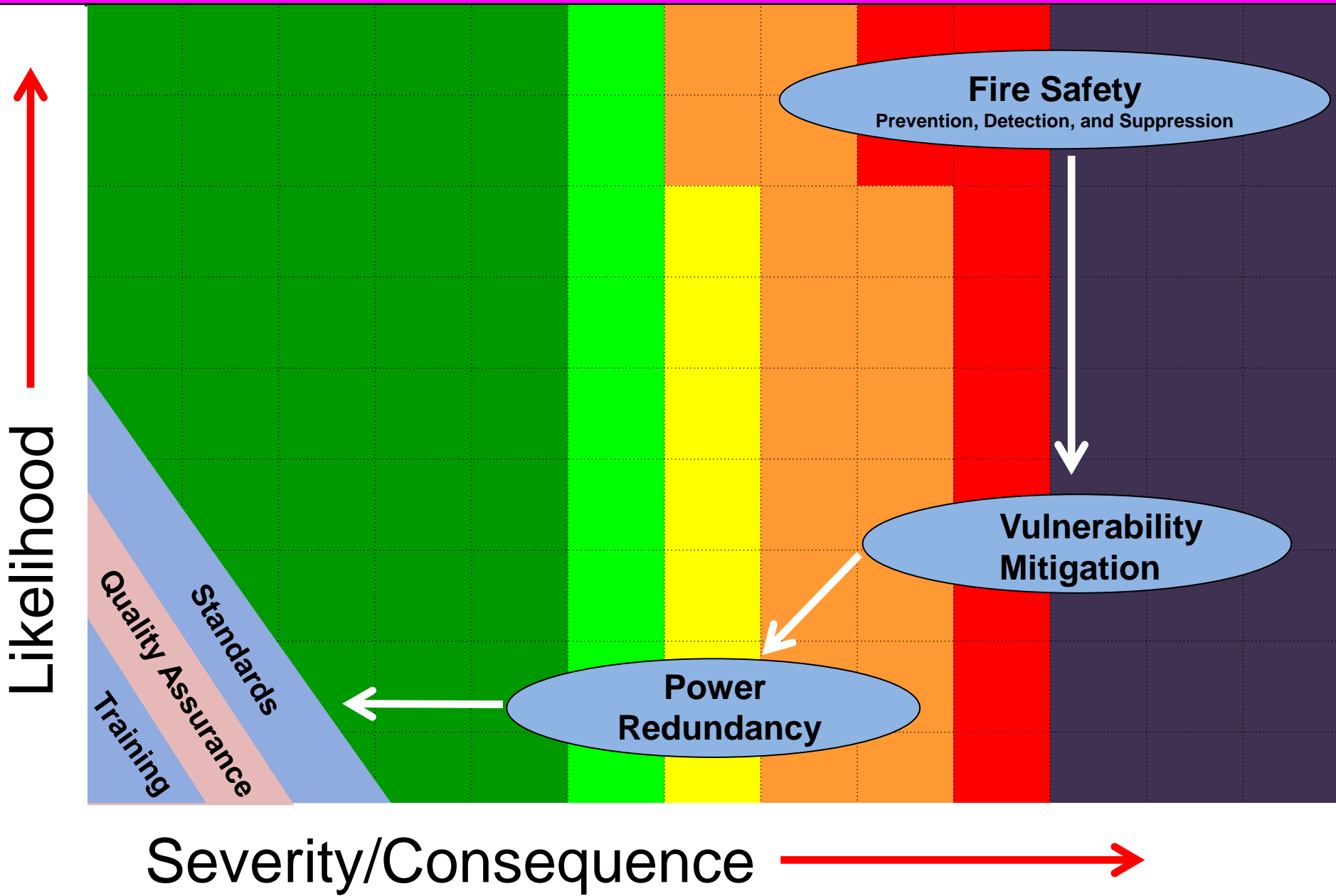
Likelihood



Severity/Consequence



Risk Reduction



Prevention, Detection, Suppression

- Engine fuel isolation valves
- DG modifications
- Fuel oil spray shield, hose replacement, hot spot management
- CCTV & auto activation
- Water mist – no time delay
- Extended water mist
- Interim Fire Watches
- Testing
 - Oil mist detection
 - Double wall flexible fuel hoses with telltale
- Training
 - Engine Room Resource Management
 - Fleet Engineers
 - Drills
 - Op tests



Vulnerability Mitigation

- Single DG room
 - Increase fire rating of existing bulkheads (insulation)
 - Add a bulkhead
- Critical Cables
 - Reroute
 - Water mist
- Main Switchboard
 - Upgrade fire insulation
 - Split switchboards
- Other
 - Add redundant equipment



Power Redundancy

- May be most effective way to reduce consequence of loss of main power by enabling critical functions.
- Additional Diesel Generator (ADG)
- Additional Switchboard
- Interim – many ships have temporary ADG



Permanent ADG, Phase II

Changing the Culture

Training

- Bridge Officers
 - Curriculum
 - Bridge Resource Management
 - Challenging Situations
 - Evaluation



Quality Assurance

- Fleet Captains
 - Mentoring
 - Evaluating
 - Reporting

HESS MS

- Corporate Standards
- Common Operating Procedures across Corporation
- Best Practices

Summary

- Operational safety is our highest priority.
- Continued safe operation of the ships.
- Continuous improvement in the safety culture of our crews.

