Chamber of Shipping of America

- 35 US based companies
- Own, operate or charter vessels
- Trading in coastwise and international trades
- US and non-US flag registries
- Variety of vessel types including tankers, bulk carriers, containerships, ro-ro’s and others
CSA Historical Involvement

- Industry advisor on US delegation to IMO
- Involvement in marine ecosystem issues associated with normal operating scenarios
- Sole marine industry representative on US federal advisory committee on Acoustic Impacts on Marine Mammals
- Steering Committee and presenter at both NOAA conferences (2004, 2007)
Marine Industry Caucus Report (FACA Committee)

- Refusal to engage in “finger pointing exercises” among sound producers
- Recognition of precautionary approach
- Recognition of need for future work but...
- Belief that current state of knowledge is sufficient to pursue possible solutions
- Need for international focus e.g. IMO
- Need for education of industry stakeholders
Recent Developments

- DE 57 finalized guidelines – March 2013
- MEPC 66 approved guidelines – April 2014
- IMO issued MEPC.1/Circ.833 – April 2014
- ISO Working Group also working on this issue (measurement protocols)
MEPC Expectations

- minimize the introduction of incidental noise from commercial shipping
- reduce potential adverse impacts on marine life
- emphasis on practical, effective solutions
- develop non-mandatory technical guidelines on potential design and construction technologies
- also look at potential navigation and operational practices
IMO Guidelines – What They Include

- Prediction of underwater noise levels (modeling at design stage)
- Design considerations (propellers, hull design, onboard machinery)
- Other technologies
- Ops/Maintenance issues (hull surface, speed, rerouting)
IMO Guidelines – What They Do Not Include (need for future work in appropriate international fora)

- Specific noise reduction target
- Multiple point source contributors assessment to determine contribution
- Quantification of relationship between individual ship as point source and as contributor to regional ambient noise
- Operating guidelines for special areas
- Noise profiles for multiple ship types
- Baseline ambient noise levels
Key Considerations

• Mariners are not marine biologists
• Mariners are not acoustical engineers
• Mariners generally are not aware of negative impacts of sound
• Mariners do want to operate in an environmentally responsible manner
• Progressive approach to assess alternative vessel designs
Ship Design and Construction

- Large customized vessels based on owner specifications (but note smaller vessels engaged in coastwise and offshore applications)
- Design criteria including propulsion systems, cargo capacity, operating equipment and economics
- Water borne noise generation is NOT yet a design criteria in new ship construction
- Reduced cavitation = increased fuel savings?
- Reduced GHG/CO2?
- Win/Win situation?
Sound Producing Activities

- Propeller cavitation
- Propulsion machinery including engines and power train
- Auxiliary machinery including generators, pumps, fans, blowers
- Cargo equipment
- Hydrodynamic flow over hull
- Depth finders
Ship Generated Noise Characteristics

- Ships as point source and collective contributors to background noise
- 85% of ship radiated noise due to excessive cavitation
- Geographic patterns depend on transoceanic and coastal routing
- Other variations due speed, load and onboard operations
- Sound respects no legal boundaries
Policy and Legal Challenges

- Variations in vessel and engine design
- **Shipbuilding industry practices**
  - Few “custom” ships built for owners
  - Shipyards build for marketplace expectations
  - Build multiple vessels in class (one design)
  - Some opportunity for customization but little relevance to underwater noise mitigation
- Existing international and national treaty, legislative and regulatory frameworks
- Legal jurisdictions e.g. high seas, EEZ, territorial sea
What’s Next?

• Continue to quantify impacts
• Assess technological feasibility of possible solutions
• Assess economics associated with alternative design processes
• Integrate solutions into normal ship operating and design scenarios
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