



National Transportation Safety Board

Maritime Risk Symposium SUNY Maritime College November 13, 2019

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Topics - NTSB

- Consider the role of pilots in autonomous ship operations?
- Assessment of training and programming – software, design, and operation in post accident analysis?
- How automation will affect interpretation of the COLREG's? How to identify shortcomings or misinterpretation ahead of time?

Pilots and Autonomous Shipping

- All vessels in foreign trade will still need pilots
- Pilot knowledge and ship-handling will be invaluable
 - Riding gang – lower echelon crew aboard
 - Inexperienced with ship handling and waterway
 - Boarding gang – no experience with ship
- Difficult waterways
 - Houston Ship Channel/Columbia River/Mississippi
 - Vessel interaction – meeting and passing, overtaking
 - Speed of transit and cargo operations
 - Panama and Suez Canal transition from sea/canal and back to sea

Post Accident Assessment

- Shore side operations – personnel interviews
- NTSB training for ship-board programs and operating systems
- Drill down and assess how autonomous operation contributed to accident or exclude

Rules of the Road – changes?

- Any changes equally applied to manned and autonomous ships
- How to identify autonomous ships – necessary?
- Restrictive areas
 - High traffic – Singapore Straits, Dover, Gibraltar
 - Harbor limits – no closer than

Rules continued

- Different lighting or just new label for AIS ?
- Proper lookout for autonomous ship
- Rule 2
 - Good Seamanship and Special Circumstance very subjective to implement in a program
- *In Extremis*
 - Another subjective application to the rules



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