Tugboat Coastal Navigation Challenges

March 5, 2018

The American Waterways Operators

About AWO

- The national trade association for the tugboat, towboat, and barge industry
- 250 carrier member companies operating on Atlantic, Pacific, and Gulf Coasts and up and down the inland rivers
- Maintains a safety partnership with Coast Guard to develop non-regulatory solutions to safety challenges

Safe Navigation Around Structures

- CG-AWO Quality Action Team established in 2014
- Response to operator concerns over the proposed placement of WEAs and other structures
- Intended to establish basic coastal navigation safety practices to inform citing of offshore structures
- Report finalized in 2015, included in ACPARS final report

Atlantic Coastwise Towing

- Types of towing vessels used in coastwise trade
- Marine planning considerations
- Next steps

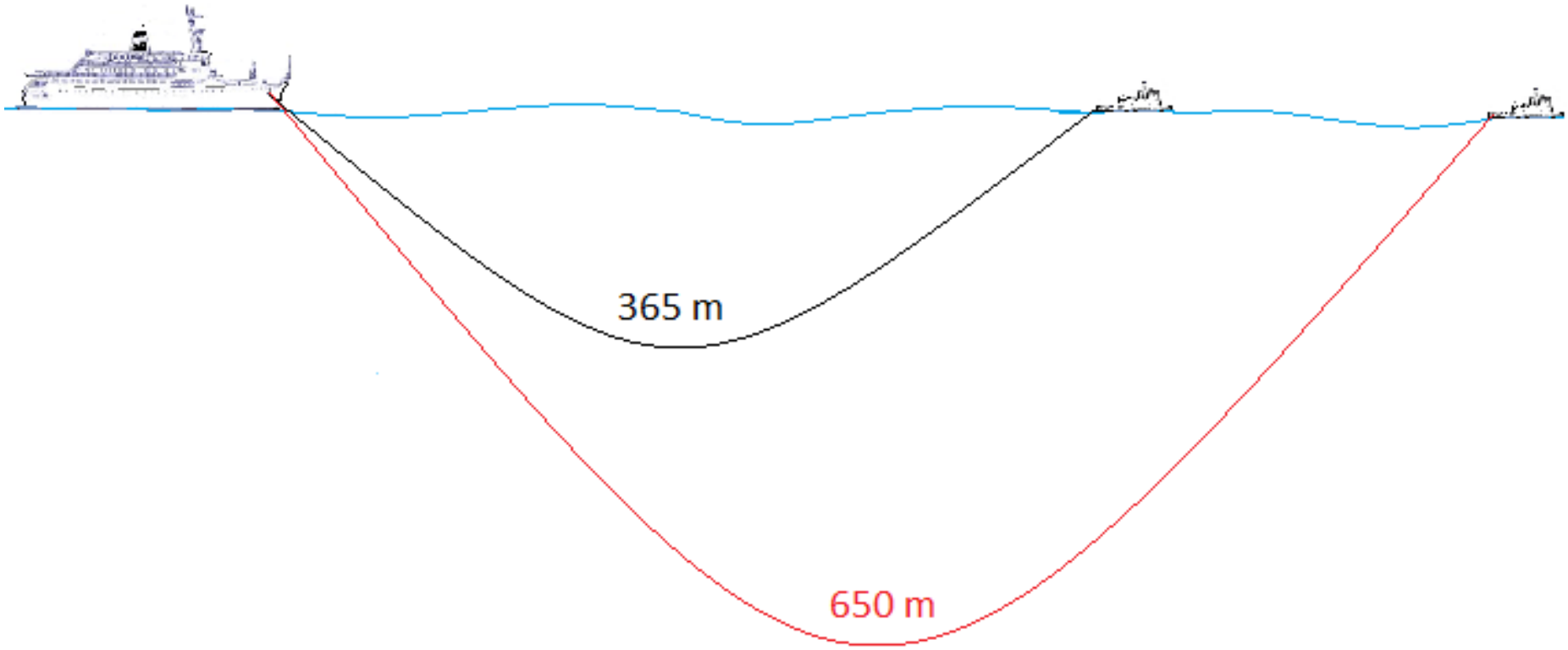
Types of Towing Vessels

- Articulated Tug Barge (ATB)
  - Tug fits into the notch of the barge
  - Hinged connection allows for articulated movement
- Integrated Tug Barge (ITB)
  - Rigid mechanical connection between tug and barge
  - No articulation
  - Rare
- Tow Wire tug and barge
  - Tug and barge connected by wire
  - Towed astern

Articulated Tug Barge

Tow Wire Tug and Barge

Tow Wire Tug and Barge with Catenary



Marine Planning Considerations

- Historic towing routes
- Cross track error
- Closest point of approach
- Density of vessel traffic
- Sea state limitations and depth of water

Towing Routes

- Location of traditional towing routes varies along coast
- Not driven by regulation, but…
- Routes based on a number of important factors:
  - Environmental habitats
  - Depth of water
  - Other traffic (rec boaters, fishing boats, deep draft vessels)
- Changing routes will create conflicts

Cross Track Error

- Difference between intended and actual track
- Environmental Forces
  - Wind, current, and sea state
- Abilities of the vessel operator
  - Recognize deviation from intended track and take corrective action
- Maneuvering characteristics of the vessel
  - Speed at which vessel responds to rudder and main engines
- “Swept Path” for average tug and barge: ¼ to ½ NM

Closest Point of Approach

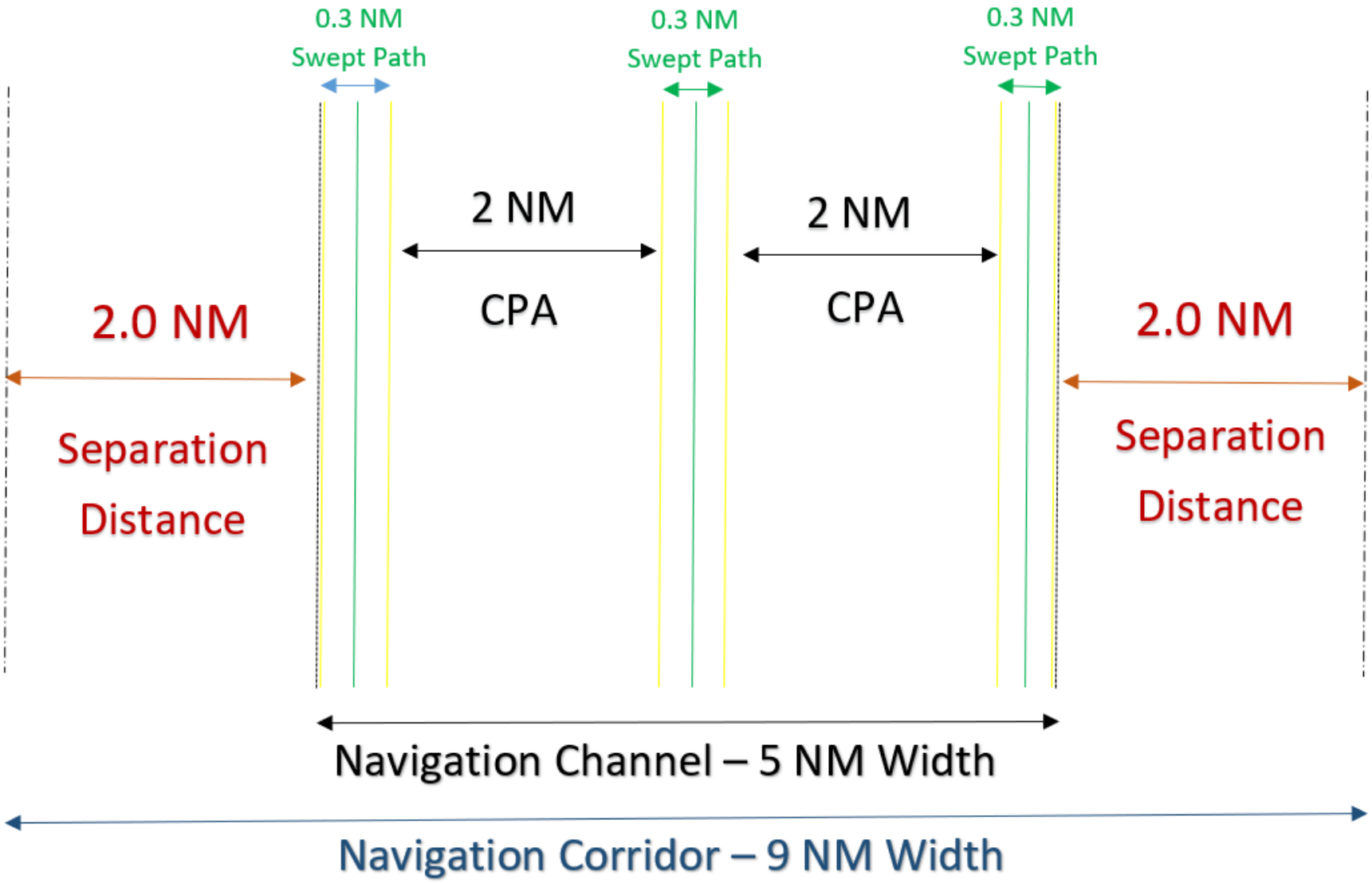
- Tug Captains required to consider all dangers to navigation before transiting
- Appropriate CPA must consider:
  - Weather
  - Vessel maneuvering capability
  - Visibility and sea state
- Under less ideal conditions, vessel aim for passing agreements of 2 nm at minimum

Density of Traffic

- Determines the likelihood of vessels sharing sea space
- Multiple vessels converging on the same location requires additional sea space to maintain appropriate CPAs
- At minimum, routes should accommodate three vessels passing abreast of each other
- Additional sea room required at entrances to harbors and other areas where different vessel types interact

Sea State and Depth of Water

- Vessel transits restricted by weather
- Easterly winds may require additional wire, requiring additional depth
- Confined offshore routes restrict vessels to departing during the most ideal circumstances


0.3 NM
Swept Path
0.3 NM
Swept Path
0.3 NM
Swept Path
2 NM
CPA
2 NM
CPA
2.0 NM
Separation
Distance
2.0 NM
Separation
Distance
Navigation Channel – 5 NM Width
Navigation Corridor – 9 NM Width

Next Steps

- Work to disseminate information in ACPARS
- Include information on towing corridor and towing routes in data portals?
- Emphasize value of front-end communication with all stakeholders

Questions and Discussion

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