

# Operating a ship in a dredged channel

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- ✓ Channel characteristics
- ✓ Ship characteristics
- ✓ Information needs
- ✓ Management issues

# The channel...

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- ✓ Physical characteristics...
  - Radius of turns - bigger is better
  - Width
    - Should received more emphasis
    - Should be based on beam of ships and windage
  - Auxiliary channels provide for traffic separation

# The channel...

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- ✓ Physical aspects cont'd...
  - Location of facilities
  - Turning basins
  - Asymmetrical channels should be avoided
  - Provide passing lanes
- ✓ Don't design to accommodate poor handling ships

# The channel...



- ✓ Aids to Navigation
  - Vital component of the channel
  - Maintain short-range aids (buoys, ranges, etc.)
  - Enhance system
- ✓ Charting / PORTS

# The ship...

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- ✓ What is a good handling ship?
- ✓ Some specific concerns
  - L/B
  - power/tonnage
  - Rudder size
    - Sized to beam?
    - Sized to wetted surface?
    - Sized to sail area?
    - Response to helm

# The ship...

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- ✓ Additional concerns...
  - Adequate visibility
  - Reasonable bear steerage speed
    - Some ships bear steerage is greater than speed when can order astern propulsion
  - Ballast condition
    - Excessive trim by stern
    - Must be controllable when in ballast

# The ship...



- ✓ Should be a standard for maneuvering at slow-speed in shallow water
  - Starting point for other decisions
  - Design channels to accommodate
  - Who funds development?

# Information needs...

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- ✓ Information available on most ships not adequate to meet needs
- ✓ Means of communicating the maneuverability of a ship, i.e. a standard
  - Quantitative vs. qualitative
  - Objective basis for making decisions re
    - ship's movement
    - imposing operational controls
  - Basis for vetting for maneuverability when chartering
  - Be careful what you ask for...

# Management...

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- ✓ Must manage as a system
  - Tendency to manage components in isolation
  - Active management / periodic review conditions
  - Coordinated/integrated management
    - USACE / USCG / NOAA
    - Local sponsor
    - Stakeholders
    - Role for harbor safety committee

# Recommendations...

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- ✓ Maritime community must treat system as a significant safety issue
- ✓ WRDA
  - Seek authorization to perform periodic reviews of projects without having to wait for specific authorization
    - Trigger (capacity, traffic volume, changing ship size, terminal expansion, etc.)
    - Use energy as justification?

# Recommendations...

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- ✓ Develop slow-speed / shallow-water maneuvering standard
  - Include in SEA-21?
  - Basis for IMO to address?
- ✓ Continue to improve ATON system
- ✓ Support NOAA development of air gap monitoring, PORTS, surveys / charting