Design of Speed Limit Policies for Shipping

CE Delft
Committed to the Environment

CE Delft

- Independent, not-for profit consultancy, founded in 1978
- Transport, Energy, Economy
- 15+ years of experience with climate policies for aviation and shipping
- Clients include UNFCCC, IMO, European Commission, national governments, NGOs, airlines, airports, aircraft manufacturers, shipping companies, ports

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Outline

- Possible aims of speed limit policies
- Possible regulatory bodies
- Design elements
- Two examples
- Conclusion

Possible aims of speed limit policies

- Reduce climate impact of shipping
  - Reduce Greenhouse Gas (GHG) emissions from shipping
    - Square relation between speed and fuel use per voyage
    - CO2 (main GHG) has a global impact
  - Reduce Black Carbon (BC) emissions
    - Climate forcer, especially on ice surfaces
    - Roughly proportional to fuel use
    - BC has a local impact
- Reduce air quality impact of shipping
  - Reduce air pollutant emissions
    - Roughly proportional to fuel use: square relation
    - SOx, NOx have a local impact
- Policy design depends on policy aim

Possible regulatory bodies

- IMO
  - New convention on ship speed would create flag state obligations and port state rights to enforce speed limits
  - Would require agreement between a number of IMO Members representing the majority of world tonnage
  - Possible global coverage, but regional (e.g. Arctic) is also possible
- EU
  - New directive on ship speed would set adherence to a speed limit as a condition of entry in an EU Member State port
  - Would require agreement between (a majority of) EU Members
  - Chance of retaliation
- Individual states
  - New law would set compliance with a speed limit as a condition of entry in port
  - Chance of retaliation

Design elements

- Legal basis and legal instrument
- Geographical scope
- Speed definition:
  - Average speed or top speed
  - Period or route to which the average applies
  - Speed over water or speed over ground
- Responsible entity:
  - Ship, master, ship owner, operator
- Ship type and size scope
  - All ships or specific ship types
  - Size thresholds and/or upper limits
- Monitoring and reporting requirements
- Enforcement
- Possible exemptions and/or flexible arrangements

Example: Arctic Speed Limit

- Legal basis and legal instrument
  - As a measure following the designation of the Arctic as a Particularly Sensitive Sea Area (PSSA) by IMO; or
  - Unilaterally in the EEZ of Arctic Council States under UNCLOS Art 234
- Geographical scope
  - The Arctic, but possibly a wider area since BC emitted at lower latitudes is also transported to the Arctic
  - Emissions south of 40 ° N have little impact
  - Impact increases with latitude
- Speed definition
  - Average speed (not top speed) as it has closer relation with engine power and thus with emissions and allows ships some flexibility to meet a schedule
  - Speed over ground as it is easier to monitor
  - single speed limit for all ship types (trade-off between environmental impact, ease of enforcement and deviation from routine)

Example: Arctic Speed Limit

- Responsible entity:
  - Ship
- Ship type and size scope
  - All ships
- Monitoring and reporting requirements
  - All ships should monitor their speed and report their speed in the geographical scope in the first port of call after leaving the geographical scope
  - States may monitor ship speeds using S-AIS and inform states about non compliance
- Enforcement
  - Port state control
- Possible exemptions and/or flexible arrangements
  - safety

Example: Global Speed Limit

- Legal basis and legal instrument
  - Basis: climate change, UNFCCC
  - Instrument: IMO convention
- Geographical scope
  - Global
- Speed definition:
  - Average speed over ground
  - One speed for all ship types would either only affect the fastest ships (e.g. a 19 knot speed limit) or have an enormous impact on fast ships (e.g. a 12 knot limit)
  - Ship *type* specific speed limits could distort the competition between ship types, although if all ships would have to reduce their speed by a certain percentage, this need not be so severe
  - **Proposal**: ship type specific speed limits, based on average design speed of vessels;

Example: Global Speed Limit

- Responsible entity:
  - Ship
- Ship type and size scope
  - All ships
  - Low size thresholds to minimise risk of distorting markets
- Monitoring and reporting requirements
  - Monitor Keep it simple: monitor average speed of voyage in log book. Report average speed on last voyages when entering port.
  - In addition, ships could be required to log AIS/GPS data
- Enforcement
  - Flag state obligations
  - Port state rights, on the basis of S-AIS observations
- Possible exemptions and/or flexible arrangements
  - Emergency, safety

Conclusion

- Speed limit policies for ships can be designed to:
  - Reduce GHG emissions from ships
  - Lower BC deposition from ships in the Arctic
  - Reduce air pollutant emissions in coastal areas
- Speed limit policies are legally feasible and can be implemented
- Main trade-off in policy design is
  - Single limit for all ships or ship type/size specific limit (environmental effectiveness, feasibility of monitoring and enforcement, risk of system shock, distortion of competition)
- Relatively little monitoring and reporting requirements

Thank you for your attention!

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