Model Parameters and Settings for Control Scenario

Parameter	Value	Notes
Lock Parameters		
Average Lockage Time for Lock 1 (min)	60	Derived from USACE LPMS data. See model Lock Parameters tab for more information.
Average Lockage Time for Lock 2 (min)	54	
Average Lockage Time for Lock 3 (min)	45	
Average Lockage Time for Lock 4 (min)	45	
Barge Allowance for Lock 1	12	Derived from USACE district webpages on the locks.
Barge Allowance for Lock 1	12	
Barge Allowance for Lock 1	12	
Barge Allowance for Lock 1	12	
Number of Lock Chambers at Lock 1	1	Derived from USACE Navigation Data Center information on the physical characteristics of locks.
Number of Lock Chambers at Lock 2	1	
Number of Lock Chambers at Lock 3	1	
Number of Lock Chambers at Lock 4	1	
Tow Parameters		
Minimum Trailing (following) Distance (miles)	0.5	Adjusted during calibration process.
Minimum Travel Speed (mph)	0.5	Initially derived from USACE LPMS data and adjusted during calibration process to these "best fitting" values.
Maximum travel Speed (mph)	10	
Typical Upstream Travel Top Speed (mph)	6	
Typical Downstream Travel Top Speed (mph)	9	
Typical Variation in Upstream travel Speeds (mph)	1	
Typical Variation in Upstream travel Speeds (mph)	1	
Typical Time Prior to an Encounter with Another Tow at Which Deceleration or Path Alternations Begin (Min)	30	Adjusted during calibration process.
Typical Time Prior to an Encounter with a Lock or Bridge at Which deceleration or Path Alternations Begin (Min)	30	Adjusted during calibration process.
Waterway Action Plan Parameters		
Allow Tows to Pass Each Other?	✓ (Enabled)	Enabling this option allows tows to pass each other if no collision will occur.
Prohibit Bridge Transit at Night	Not enabled	Transit past bridges is allowed at night.
Prohibit Travel at Night?	Not enabled	Travel at nighttime is allowed.

Minimum Horsepower to Barge Ratio for Tows (HP/Barge)	100	Basic requirement of at least 100 horsepower for each barge in tow.
Maximum Tow Size (Number of Barges per Tow)	15	Upper end of tow size observed on the Ohio River.
Establish One-Way Traffic Zone?	Not enabled	There is no one-way zone established.
Starting River Mile of One-Way Zone	30	Just a placeholder. Not used as one-way zone not active.
Starting River Mile of One-Way Zone	40	Just a placeholder. Not used as one-way zone not active.
Allow Locking at Night at Lock 1?	✓ (Enabled	No restrictions to locking at night.
Allow Locking at Night at Lock 2?	✓ (Enabled	
Allow Locking at Night at Lock 3?	✓ (Enabled	
Allow Locking at Night at Lock 4?	✓ (Enabled	
Close Lock 1?	Not enabled	No closures of the locks.
Close Lock 2?	Not enabled	
Close Lock 3?	Not enabled	
Close Lock 4?	Not enabled	
Wait at Dock if Active Casualty?	Not enabled	Tows will not wait at their origin point (dock) and will continue moving as far as possible even if there is an active casualty between them and their destination.
Divert Freight if Active Casualty?	Not enabled	Tows will not divert freight off the waterway even if there is an active casualty between them and their destination.
River Setup Parameters		
River Mile of Bridges	1, 2, 3, 9, 10, 12, 17, 24, 25, 28, 35, 43, 44, 62	Locations of bridges that may pose travel obstruction obtained from Ohio River Navigation Charts.
River Mile of Dams	6, 13, 32, 54	Locations of Emsworth, Dashields, Montgomery, and New Cumberland locks and dams obtained from Ohio River Navigation Charts.
River Mile of Tow Origins	0-85	Location of first appearance of tows from AIS data.

Interface		
filename	various	This is the name of the output data file for each simulation run.
Interval-time (minutes)	30	All times are rounded to the nearest half-hour and actions take place at half-hour intervals. Shorter intervals take much more processing power, memory space, and calibration tests suggest do not improve performance.
Starting-Month	1 or 6	1 (Jan) was the starting time used with 2013 data and 6 (Jun) was the starting time used with 2014 data.
Starting-Year	2013 or 2014	2013 AIS data indicates reduced traffic when compared with 2014.
Run-Time-in-Days	90	Somewhat arbitrary runtime. Runs longer than 3 months require more computational power and memory while 1 month ran the risk of being too short to capture extended delays.
Scenario	No Casualty	No incident scenario is generated.
Incident-Duration (days)	7	Not active when scenario is 'No Casualty'.
Wait-for-helper	No	The Elizabeth M will not wait for a helper tow and will immediately start traveling towards its destination. Not active when scenario is 'No Casualty'.
Wait-time (days)	2	Days the Elizabeth M will wait before beginning travel towards its destination. Not active when scenario is 'No Casualty' or Wait-for-helper is 'No'.