

Appendix I

Summary tables: mid Atlantic and Southeast U.S. ports

Tables 3a-i and 4a-c, Appendix II, summarize the computations of the additional time, ΔT_{NET} , it would take for various vessel types to comply with the proposed seasonal management area (20, 25 and 30 nautical miles) and potential speed restrictions (10, 12, and 13 knots) for mid Atlantic ports (except Block Island Sound) and ports within the Southeast U.S. critical habitat. (Average vessel sea speeds can be found in Table 1, column 2). A null value across all columns indicates that no vessels of the type listed called at the port in CY 1999.

Tables 3 (a-i) mid Atlantic Ports

Table 3a

**Ports of
NY / NJ**

Additional Transit Time, minutes
@ RS = 10 Kts

Additional Transit Time, minutes
@ RS = 12 Kts

Additional Transit time, minutes
@ RS = 13 Kts

Location of Pilot buoy @ 6.8nm		20nm	25nm	30nm	20nm	25nm	30nm	20nm	25nm	30nm
Vessel Category	Speed									
dry bulk—handy	14	25	28	33	17	15	16	13	10	9
Handymax	14	25	28	33	17	15	16	13	10	9
Panamax	14.5	26	30	36	18	17	19	14	12	12
Cape	14.5	26	30	36	18	17	19	14	12	12
Tanker—product	14	25	28	33	17	15	16	13	10	9
Aframax	15	28	32	39	19	19	22	16	14	15
Suezmax	14.5	26	30	36	18	17	19	14	12	12
VLCC										
Container-1000TEU	15	28	32	39	19	19	22	16	14	15
--1500TEU	15	28	32	39	19	19	22	16	14	15
--2000TEU	24	35	53	68	26	41	51	23	35	44
--3000TEU	24	35	53	68	26	41	51	23	35	44
--4000TEU	24	35	53	68	26	41	51	23	35	44
LNG	20									
Car Carrier	16	30	35	44	22	23	27	18	18	20
Cruise ship	25	35	54	69	26	42	53	23	37	46
tug/barge--freight	12	19	18	20	0	0	0	0	0	0
-----tank	12	19	18	20	0	0	0	0	0	0

Table 3a shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of the seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling at the ports of New York and New Jersey.

Table 3b

Ports of Philadelphia

Additional Transit Time, minutes

Additional Transit Time, minutes

Additional Transit Time, minutes

@ RS = 10 Kts

@ RS = 12 Kts

@ RS = 13 Kts

Location of Pilot buoy @ 2.5 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
handymax	14									
Panamax	14.5	34	38	44	22	21	23	17	14	14
Cape	14.5									
tanker--product	14									
Aframax	15									
Suezmax	14.5	34	38	44	22	21	23	17	14	14
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24	57	68	83	44	51	61	39	45	53
--4000TEU	24									
LNG	20									
Car Carrier	16									
Cruise ship	25									
tug/barge--freight	12	23	22	24	0	0	0	0	0	0
--tank	12	23	22	24	0	0	0	0	0	0

Table 3b shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of the seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling at the ports of Philadelphia (Delaware bay and River).

Table 3c

**Hampton Roads
Chesapeake Bay**

Additional Transit Time, minutes

Additional Transit Time, minutes

Additional Transit Time, minutes

@ RS = 10 Kts

@ RS = 12 Kts

@ RS = 13 Kts

Location of Pilot buoy @ 2.85 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
handymax	14									
Panamax	14.5	34	37	43	22	21	23	16	14	14
Cape	14.5									
tanker--product	14									
Aframax	15									
Suezmax	14.5	34	37	43	22	21	23	16	14	14
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24	55	67	81	43	51	61	38	44	52
--4000TEU	24									
LNG	20									
Car Carrier	16									
Cruise ship	25									
tug/barge--freight	12	22	21	23	0	0	0	0	0	0
--tank	12	22	21	23	0	0	0	0	0	0

Table 3c shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in the Hampton Road area (Chesapeake Bay).

Table 3d

**Baltimore
Chesapeake Bay**

Additional Transit Time, minutes
@ RS = 10 Kts

Additional Transit Time, minutes
@ RS = 12 Kts

Additional Transit Time, minutes
@ RS = 13 Kts

Location of Pilot buoy @ 2.85 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
Handymax	14									
Panamax	14.5	34	37	43	21.5	20.8	22.6	16.3	14.1	14.2
Cape	14.5									
tanker--product	14									
Aframax	15									
Suezmax	14.5	34	37	43	21.5	20.8	22.6	16.3	14.1	14.2
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24	55	67	81	43.0	50.5	60.5	37.8	43.8	52.1
--4000TEU	24									
LNG	20	49	58	70	36.5	41.5	49.0	31.3	34.7	40.5
Car Carrier	16	39	44	52	26.6	27.9	31.6	21.4	21.1	23.1
Cruise ship	25	57	69	84	44.4	52.4	62.9	39.2	45.6	54.4
tug/barge--freight	12	22	21	23	0	0	0	0	0	0
--tank	12	22	21	23	0	0	0	0	0	0

Table 3d shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Baltimore(Chesapeake Bay).

Table 3e

Wilmington, NC

*Additional Transit Time, minutes
@ RS = 10 Kts*

*Additional Transit Time, minutes
@ RS = 12 Kts*

*Additional Transit Time, minutes
@ RS = 13 Kts*

Location of Pilot buoy @ 4.1 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
Handymax	14									
Panamax	14.5	31	35	41	20	20	22	16	14	14
Cape	14.5									
tanker--product	14									
Aframax	15									
Suezmax	14.5	31	35	41	20	20	22	16	14	14
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24	51	62	77	40	47	57	35	41	49
--4000TEU	24									
LNG	20									
Car Carrier	16									
Cruise ship	25									
tug/barge--freight	12	21	20	22	0	0	0	0	0	0
--tank	12	21	20	22	0	0	0	0	0	0

Table 3e shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Wilmington, NC.

Table 3f

Morehead City, NC		<i>Additional Transit Time, minutes @ RS = 10 Kts</i>			<i>Additional Transit Time, minutes @ RS = 12 Kts</i>			<i>Additional Transit Time, minutes @ RS = 13 Kts</i>		
Location of Pilot buoy @ 6.7 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14	25	28	33	17	15	17	13	10	10
handymax	14	25	28	33	17	15	17	13	10	10
Panamax	14.5	27	30	36	18	18	19	15	12	12
Cape	14.5	27	30	36	18	18	19	15	12	12
tanker--product	14	25	28	33	17	15	17	13	10	10
Aframax	15	28	32	39	20	20	22	16	14	15
Suezmax	14.5	27	30	36	18	18	19	15	12	12
VLCC										
container--1000TEU	15	28	32	39	20	20	22	16	14	15
--1500TEU	15	28	32	39	20	20	22	16	14	15
--2000TEU	24	35	53	68	27	4	51	23	36	44
--3000TEU	24	35	53	68	27	41	51	23	36	44
--4000TEU	24	35	53	68	27	41	51	23	36	44
LNG	20									
Car Carrier	16	30	35	44	22	23	27	18	18	20
Cruise ship	25	35	55	70	27	42	53	23	37	46
tug/barge--freight	12	19	18	20	0	0	0	0	0	0
--tank	12	19	18	20	0	0	0	0	0	0

Table 3f shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of e seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Morehead City, NC. Note that not we include all the vessel categories, pending a study of the vessels that call in Morehead City, NC.

Table 3g

Georgetown, SC

**Additional Transit Time, minutes
@ RS = 10 Kts**

**Additional Transit Time, minutes
@ RS = 12 Kts**

**Additional Transit Time, minutes
@ RS = 13 Kts**

Location of Pilot buoy @ 5.6 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14	27	30	35	18	16	17	14	11	10
handymax	14	27	30	35	18	16	17	14	11	10
Panamax	14.5	29	32	38	19	18	20	15	13	13
Cape	14.5	29	32	38	19	18	20	15	13	13
tanker--product	14	27	30	35	18	16	17	14	11	10
Aframax	15	30	34	41	21	21	23	16	15	16
Suezmax	14.5	29	32	38	19	18	20	15	13	13
VLCC										
container--1000TEU	15	30	34	41	21	21	23	16	15	16
--1500TEU	15	30	34	41	21	21	23	16	15	16
--2000TEU	24	42	57	72	32	44	54	28	38	46
--3000TEU	24	42	57	72	32	44	54	28	38	46
--4000TEU	24	42	57	72	32	44	54	28	38	46
LNG	20									
Car Carrier	16	33	38	46	23	24	28	19	19	21
Cruise ship	25	42	59	74	32	45	56	28	40	48
tug/berge--freight	12	20	19	21	0	0	0	0	0	0
--tank	12	20	19	21	0	0	0	0	0	0

Table 3g shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Georgetown, SC. Note that not we include all the vessel categories, pending a study of the vessels that call in Georgetown, SC.

Table 3h

Charleston, SC

Location of Pilot buoy @ 12.5 nm		<i>Additional Transit Time, minutes</i> <i>@ RS = 10 Kts</i>			<i>Additional Transit Time, minutes</i> <i>@ RS = 12 Kts</i>			<i>Additional Transit Time, minutes</i> <i>@ RS = 13 Kts</i>		
		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
handymax	14	9	18	23	5	11	12	3	8	8
Panamax	14.5	9	19	25	5	13	14	3	10	10
Cape	14.5									
tanker--product	14	9	18	23	5	11	12	3	8	8
Aframax	15	9	20	27	5	14	16	3	11	11
Suezmax	14.5	9	19	25	5	13	14	3	10	10
VLCC										
container--1000TEU	15	9	20	27	5	14	16	3	11	11
--1500TEU	15									
--2000TEU	24	9	24	48	5	18	36	3	15	32
--3000TEU	24	9	24	48	5	18	36	3	15	32
--4000TEU	24									
LNG	20									
Car Carrier	16	9	22	31	5	16	20	3	13	15
Cruise ship	25	9	24	49	5	18	38	3	15	33
tug/barge--freight	12	9	12	14	0	0	0	0	0	0
--tank	12	9	12	14	0	0	0	0	0	0

Table 3h shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of the seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Charleston, SC.

Table 3i

Savannah, GA

		<i>Additional Transit Time, minutes</i> <i>@ RS = 10 Kts</i>			<i>Additional Transit Time, minutes</i> <i>@ RS = 12 Kts</i>			<i>Additional Transit Time, minutes</i> <i>@ RS = 13 Kts</i>		
Location of Pilot buoy @ 9.7 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
handymax	14									
Panamax	14.5	17	24	31	12	15	17	9	11	11
Cape	14.5									
tanker--product	14									
Aframax	15									
Suezmax	14.5	17	24	31	12	15	17	9	11	11
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24	17	41	57	12	32	43	9	28	38
--4000TEU	24									
LNG	20									
Car Carrier	16									
Cruise ship	25									
tug/barge--freight	12	16	15	17	0	0	0	0	0	0
--tank	12	16	15	17	0	0	0	0	0	0

Table 3i shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of the seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Savannah, GA.

Tables 4 a-c: Ports within the Southeast U.S. Critical Habitat

Table 4a

Brunswick, GA

*Additional Transit Time, minutes
@ RS = 10 Kts*

*Additional Transit Time, minutes
@ RS = 12 Kts*

*Additional Transit Time, minutes
@ RS = 13 Kts*

Location of Pilot buoy @ 6.7 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
handymax	14									
Panamax	14.5	25	28	34	16	16	17	12	10	10
Cape	14.5									
tanker--product	14									
Aframax	15	25	28	34	16	16	17	12	10	10
Suezmax	14.5									
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24									
--4000TEU	24									
LNG	20									
Car Carrier	16	28	34	42	20	21	25	16	16	18
Cruise ship	25									
tug/berge--freight	12	17	16	18	0	0	0	0	0	0
--tank	12	17	16	18	0	0	0	0	0	0

Table 4a shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of the seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Brunswick, GA.

Table 4b

**Fernandina
Beach, FL**

Additional Transit Time, minutes
@ RS = 10 Kts

Additional Transit Time, minutes
@ RS = 12 Kts

Additional Transit Time, minutes
@ RS = 13 Kts

Location of Pilot buoy @ 10.9 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
handymax	14									
Panamax	14.5	10	22	28	6	14	16	4	10	10
Cape	14.5									
tanker--product	14									
Aframax	15									
Suezmax	14.5									
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24	10	34	53	6	26	40	4	22	35
--4000TEU	24									
LNG	20									
Car Carrier	16									
Cruise ship	25									
tug/barge--freight	12	10	13	15	0	0	0	0	0	0
--tank	12	10	13	15	0	0	0	0	0	0

Table 4b shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of the seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling at Fernandina Beach, FL.

Table 4c

Jacksonville, FL

*Additional Transit Time, minutes
@ RS = 10 Kts*

*Additional Transit Time, minutes
@ RS = 12 Kts*

*Additional Transit Time, minutes
@ RS = 13 Kts*

Location of Pilot buoy @ 4.2 nm		20	25	30	20	25	30	20	25	30
Vessel category	Speed									
dry bulk--handy	14									
handymax	14									
Panamax	14.5	31	35	41	20	20	22	16	13	14
Cape	14.5									
tanker--product	14									
Aframax	15									
Suezmax	14.5	31	35	41	20	20	22	16	13	14
VLCC										
container--1000TEU	15									
--1500TEU	15									
--2000TEU	24									
--3000TEU	24	50	62	77	39	47	57	35	41	49
--4000TEU	24									
LNG	20	45	54	66	34	39	46	29	33	38
Car Carrier	16	36	41	49	25	26	30	20	20	22
Cruise ship	25	50	64	79	39	49	59	35	43	51
tug/barge--freight	12	21	20	22	0	0	0	0	0	0
--tank	12	21	20	22	0	0	0	0	0	0

Table 4c shows the additional time required with proposed speed restrictions of 10, 12 and 13 knots and proposed geographic extent of the seasonal management areas (SMA) of 20, 25 and 30 nautical miles for vessels calling in Jacksonville, FL