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I. PURPOSE

Section 310(b) of the Coast Guard Authorization Act (CGAA) of 2015, Public Law 114-120, signed on February 8, 2016 directs the Coast Guard to “complete and submit [to the Congress] a port access route study of Nantucket Sound using the standards and methodology of the Atlantic Coast Port Access Route Study, to determine whether the Coast Guard should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as increased vessel traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty in the vicinity.” A copy of this Authorization Act is included as Enclosure 1.

The Ports and Waterways Safety Act (PWSA) requires the Coast Guard to conduct a study of potential traffic density and assess the need for safe access routes for vessels, before establishing or adjusting fairways or traffic separation schemes (TSS). These evaluations are called Port Access Route Studies (PARS). Throughout the study process the Coast Guard must coordinate with certain Federal and State agencies, and consider the views of maritime community representatives, environmental groups, and other interested stakeholders. A primary purpose of this coordination is, to the extent practicable, to reconcile the need for safe access routes with other reasonable waterways uses. This PARS meets the mandate provided in the CGAA of 2015 by using the standards and methodology in the Atlantic Coast PARS.

The Nantucket PARS Workgroup (WG) included First Coast Guard District and Coast Guard Sector Southeastern New England Waterways Management team members. The WG was tasked on February 16, 2016, to determine whether it should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as:

- (a) Increased vessel traffic;
- (b) Changing vessel traffic patterns;
- (c) Weather conditions; or
- (d) Navigational difficulty in the vicinity.

II. BACKGROUND

A. Statutory Authority and Direction:

The PWSA (33 U.S.C. § 1223(c)) authorizes the Coast Guard to designate necessary fairways and traffic separation schemes to provide safe access routes for vessels proceeding to and from United States ports. The designation of fairways and TSS recognizes the paramount right of navigation over all other uses in the applicable areas, subject however, to certain preexisting rights granted through leases or permits.

The CGAA of 2015 directs the Coast Guard to “complete and submit [to the Congress] a port access route study of Nantucket Sound using the standards and methodology of the Atlantic Coast PARS, to determine whether the Coast Guard should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as increased vessel traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty in the vicinity.”

B. Atlantic Coast PARS Methodology and Standards:

The WG used PARS process authorized by the PWSA and applicable Coast Guard policies. In conducting the Nantucket Sound PARS, the Coast Guard was directed to use “the standards and methodology in the Atlantic Coast PARS.” The Atlantic Coast PARS was signed by the Coast Guard on February 24, 2016, and notice of its availability (and request for comment) was published in the Federal Register on March 14, 2016. The standards and methodology of the Atlantic Coast PARS are contained in the “Marine Planning Guidelines – Recommended Navigational Safe Distances” (contained in Enclosure 2 of the Atlantic Coast PARS, and included as Enclosure 2 of this PARS). The planning guidelines address “coastwise or coastal shipping routes,” the category of routes most applicable to Nantucket Sound, as compared with the “port approaches and traffic separation schemes” category which is applicable to larger, deeper-draft oceangoing vessel traffic transiting to or from major coastal ports.

The Atlantic Coast PARS Methodology and Standards are established to:

1. Determine present and potential traffic density, if existing vessel routing measures are adequate or require modifications.
2. Define and justify any need for new vessel routing measures.
3. Determine the type of new vessel routing measures.
4. Determine if the usage of the vessel routing measures must be mandatory for specific classes of vessels.

The WG’s approach incorporates the framework for conducting the Atlantic Coast PARS study to include up to four phases:

1. Phase 1 – Gather Data to identify existing and future waterway usage. All of Phase 1 was targeted for completion in this PARS report.
2. Phase 2 - Apply Suitability Criteria using the shipping routes identified in Phase 1 and apply best available data to identify areas within the study area. Based on the information collected and assessed in Phase 1, applicable portions of Phase 2 were also addressed in this PARS report.

3. Phase 3 – Analyze Data to predict changes in traffic patterns and determine the change in navigational risk due to the complex interactions of the various factors that would impact navigation. Applicable portions of Phase 3, using information obtained from Phase 1 and 2, were also completed in this PARS report.
4. Phase 4 – Implement Study Recommendations which might involve: (1) initiating the regulatory process to create or modify any routing measures, or (2) the International Maritime Organization (IMO) processes to establish or amend routing measures. Though recommendations resulting from Phases 1 through 3 are included in this PARS Report, next steps will be determined as part of Coast Guard Waterway Management Program management determination.

C. Study Area:

The study area is described as Nantucket Sound, an area determined by the WG for the purposes of this study to be bounded by a line connecting the following geographic positions, including the major entrance and exit routes to the sound, but not the individual harbors within the sound:

1. 41°41' N, 070°00' W;
2. 41°20' N, 070°00' W;
3. 41°16' N, 070°15' W;
4. 41°28' N, 070°40' W; and
5. 41°34' N, 070°40' W

See Appendix A for a chart of the study area.

D. Previous Analyses:

Nantucket Sound, to include its main waterways, has not previously been the subject of a PARS, though it has undergone several analyses for other purposes. Since 1987, three Waterways Analysis Management System (WAMS) Reviews have been completed to assess the effectiveness of the Federal Aids to Navigation system in Nantucket Sound Main and Cross Rip, North, and North Side Channels, and, though outside the study area, the major feeder waterways of Pollack Rip, Great Round Shoal, and Muskeget Channels. Additionally, in 2008, the Coast Guard, as a cooperating agency for National Environmental Policy Act (NEPA) purposes, assessed navigation safety issues associated with the proposed Cape Wind turbine generating lease request for the lead federal permitting agency, the Bureau of Ocean Energy Management (BOEM, then the Mineral Management Service).

E. Definition of Terms:

To help readers understand certain terms used in this PARS, definitions are listed in Appendix B.

F. Abbreviations and Acronyms:

See Appendix C for a list of abbreviations and acronyms used in this PARS.

G. Outreach Process:

A Federal Register “Notice of study; request for comments” (USCG-2016-0165) was published in the Federal Register on March 22, 2016. A copy of this Federal Register notice is included as Enclosure 3.

Also on March 22, 2016, Coast Guard Sector Southeastern New England issued Marine Safety Information Bulletin 01-16 to further disseminate announcement of the study. This Bulletin is distributed via e-mail to over 870 subscribers. A copy of this Bulletin is included as Enclosure 4 to this study. Notice of the PARS was also published each week for 14 consecutive weeks in the First Coast Guard District Local Notice To Mariners (4,270 subscribers) from March 23 to June 22, 2016.

The WG also discussed the Nantucket Sound PARS and solicited comments at several public forums:

- The March 30, 2016, Southeastern New England Passenger Vessel Industry Day held at Fall River, Massachusetts;
- The April 5, 2016, Southeastern Massachusetts Port Safety and Security Forum held at Hyannis, Massachusetts; and
- The April 7, 2016, Rhode Island Port Safety and Security Forums held at Providence, Rhode Island.

Finally, in conducting this PARS, the WG notified and coordinated with appropriate Federal and State agencies included in the contact list in Appendix D.

III. THE STUDY

A. Existing Regulations:

Existing regulations that apply to Nantucket Sound study area include:

1. The Navigation Rules, International and Inland (“Rules of the Road”) contained in 33 CFR subchapters D and E, respectively.
2. Vessel Operating Regulations contained in 33 CFR subchapter F.
3. Vessel Bridge-To-Bridge Radiotelephone Regulations contained in 33 CFR 26.

4. Anchorage regulations contained in 33 CFR §110.140, “Buzzards Bay, Nantucket Sound, and adjacent waters, Mass” which define seven distinct anchorages within or bordering Nantucket Sound (lettered anchorages “E” through “K”).
5. Regulated Navigation Area contained in 33 CFR 165.100. These regulations govern towing vessels engaged in towing tank barges carrying petroleum oil in bulk.
6. Regulations governing the conduct of regattas and marine parades contained in 33 CFR subchapter G.
7. General Coast Guard Captain of the Port (COTP) authority contained in 33 CFR 1.01.
8. U.S. Aids to Navigation System contained in 33 CFR subchapter C.
9. U.S. Army Corps of Engineers (USACE) regulations regarding obstructions and hazards to navigation pursuant to The Rivers and Harbors Appropriation Act of 1899, 33 U.S.C. §407.

The list of federal regulations above is not all-inclusive, but cites those regulations most significant to the issues considered in the Nantucket Sound PARS. There are multiple other federal regulations designed to ensure navigation safety that may apply to one or more segments of the maritime community, i.e., passenger-carrying vessels (ferries), excursion vessels. These regulations, generally contained in 33 or 46 CFR, may require carriage of certain navigation safety equipment such as radar, Automatic Identification System (AIS), VHF communications; may require credentials of crew such as master, mate, engineer; and may prescribe certain vessel construction and operating standards.

B. Waterways Analysis Management System (WAMS) Reviews:

WAMS Reviews are periodically conducted by the Coast Guard to determine the need for modifications to the Aids To Navigation (AtoN) system in U.S. waterways. The WG examined all past WAMS Reviews of Nantucket Sound to determine if there were any past requests for or references to a need for additional traffic routing measures. Appendix E includes the Waterway Criticality Work Sheet for Nantucket Sound that was reviewed and updated to support this PARS. After validation, the current status of Nantucket Sound for the purposes of AtoN evaluation and discrepancy response time determination remains “Critical Environmental.” This means that a degradation of the current aids to navigation system would present an unacceptable level of risk to the environment.

C. Assessing Existing and Future Waterway Uses:

Nantucket Sound waterways are used for both recreational and commercial purposes year-round. Traffic is highest from May through October when large numbers of recreational power vessels, sail boats, and charter fishing boats are present. Most of the commercial traffic is represented by passenger ferry companies servicing Nantucket and Martha’s Vineyard from Hyannis, Falmouth, New Bedford, and smaller ports in Massachusetts, and Quonset, Rhode Island, and commercial fishing vessels which frequently transit the area en route to Georges Banks and other major

fishing grounds. Additionally, Nantucket Sound hosts occasional small cruise ship transits and infrequent tug and barge traffic.

Based on AIS data collected from 2013 to 2016, Nantucket Sound hosts more recreational vessels than any other type. Figure 1 shows the predominance of recreational boating in the Nantucket Sound area over commercial traffic and other vessels transiting the area. Recreational vessels carrying AIS account for 2.5 times all other vessels with AIS, focused particularly during the summer months. AIS carriage requirements can be found here: [url:http://www.navcen.uscg.gov/?pageName=AISRequirementsRev](http://www.navcen.uscg.gov/?pageName=AISRequirementsRev).

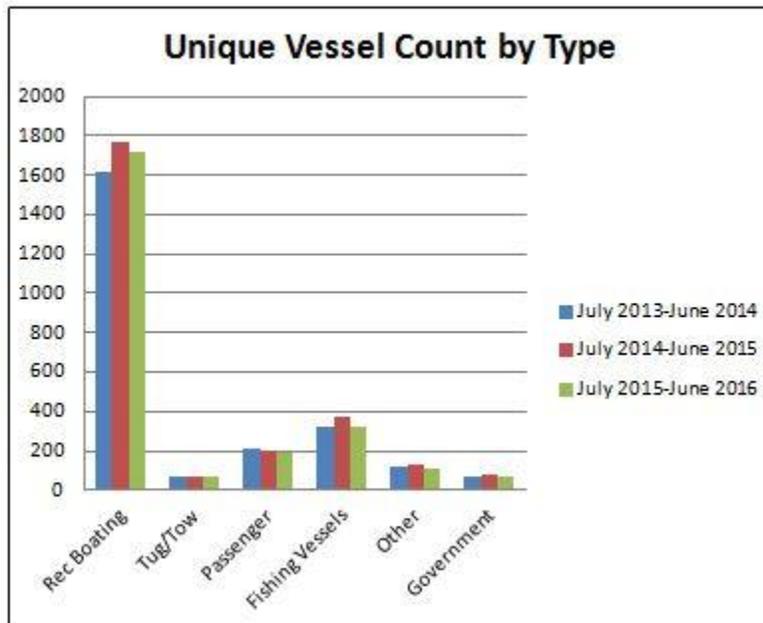


Figure 1: Three years of AIS vessel traffic data within Nantucket Sound
Source: U.S. Coast Guard NAVCEN AIS Data

The following resources were evaluated to determine current and future vessel trends:

1. Steamship Authority Traffic Data by category of activity.

As shown in Table 1 below, annual total ferry trips within Nantucket Sound have remained relatively consistent from year to year. The number of passengers transported has increased on average slightly over 1% per year, automobiles transported has remained nearly constant, and trucks transported has risen about 2% each year.

The type and amount of commodities transported by the Steamship Authority is not tracked, though as noted below, the United States Army Corps of Engineers (USACE) reports some commodity activity. Commodities transported by vessels within Nantucket Sound during the same period show a wide variation in the amounts transported. The

data suggests neither an upward nor downward trend in the amount of commodities transported by vessels within Nantucket Sound. The commodities transported fall primarily within two categories: petroleum products and raw materials for building. These two categories have remained constant throughout the period.

	Annual Total Ferry Trips	Passengers Carried	Automobiles Carried	Trucks Carried
2005	22,397	2,609,835	455,657	141,620
2006	22,042	2,620,565	449,902	153,486
2007	21,991	2,692,366	452,757	146,444
2008	21,796	2,692,031	451,820	142,930
2009	21,445	2,693,178	433,042	156,611
2010	21,260	2,736,147	438,515	156,636
2011	21,476	2,712,047	439,721	154,380
2012	21,641	2,802,980	449,850	153,757
2013	22,050	2,846,691	452,286	162,148
2014	22,107	2,893,851	547,682	166,577
2015	22,437	3,023,090	465,297	172,861

Table 1 - Steamship Authority Activity Nantucket Sound, 2005-2015

Source: The Woods Hole, Martha's Vineyard and Nantucket Steamship Authority Activity Statistics

2. National Marine Fisheries Service (NMFS) Vessel Monitoring System (VMS) Data.

Overall fishing vessel transits have remained relatively consistent from 2010 to 2015, the data range which is currently available from NMFS. This is based on the report in Appendix F, provided by the NMFS Office of Law Enforcement's Northeast VMS Team. This summary shows the number of VMS-equipped vessel transits of the Nantucket Sound Study Area for each of the calendar years available.

Table 2 below indicates the total counts of VMS vessel transits of Nantucket Sound by calendar year, from 2010 through 2015. Also shown are counts of unique (by federal documentation number or state registration number) VMS vessels conducting the transits. For example in 2010, 332 different VMS vessels together made 7,177 transits of the Sound. VMS data is heavily influenced by fisheries management decisions that often change yearly or even seasonally, and make it difficult to ascertain overall traffic patterns. Accordingly, predictions of future fishing vessel traffic are even more difficult.

YEAR	TRANSITS	VESSELS
2010	7177	332
2011	7620	392
2012	9183	405
2013	9088	431
2014	7762	374
2015	7079	387

Table 2: Counts of Transits and Vessels by Year, Nantucket Sound

Source: NMFS Office of Law Enforcement’s Northeast VMS Team Data

3. Automatic Identification System Data.

The Coast Guard Navigation Center (NAVCEN) provided all available AIS vessel traffic data for Nantucket Sound which covered the last three years (July 2013 - June 2016). With only three years of data, along with changing AIS carriage requirements during those years, future traffic volume is complicated to predict. However, AIS data confirms the routes taken by vessels outfitted with this equipment in those areas most frequently transited (see Figure 2). See Appendix G (Figures 1 and 2, Table 1) for detailed AIS data.

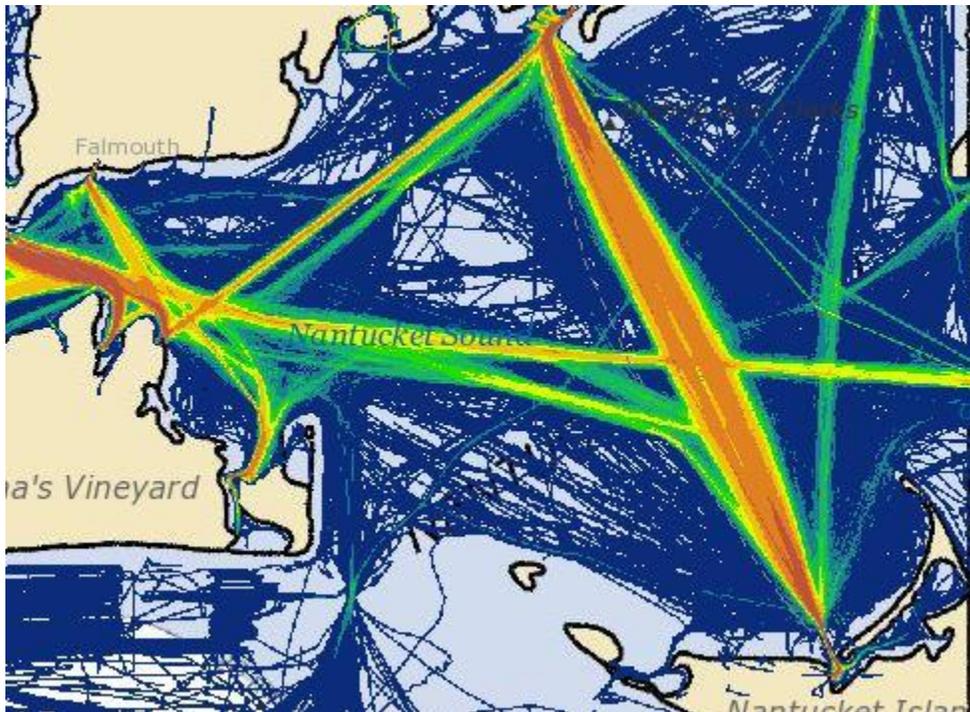


Figure 2: 2013 Vessel Route Density (Cargo, Passenger, Tug/Tow, Tanker)

Source: Northeast Ocean Data Portal; <http://www.northeastoceandata.org/data-explorer/?marine-transportation>

4. Recreational Vessel Registration Data.

Based on the data in Appendix G, Table 2 and Figure 4, in the eleven years from 2006 to 2016, total recreational vessel registrations for communities surrounding Nantucket Sound have decreased 7.5%, or 1,925 vessels.

5. USACE Vessel Transit Data.

Based on the data in Tables 3 and 4 of Appendix G, from 2006 to 2014, overall vessel transits and volume of commodities tracked in the largest ports adjacent to Nantucket Sound indicate no obvious trends. However, the USACE Waterborne Commerce statistics are not ideal for this analysis, as it counts transits into/out of some ports abutting Nantucket Sound (Falmouth, Hyannis, Vineyard Haven, Nantucket), instead of through the waterways of Nantucket Sound itself. Furthermore, the statistics are self-reported so reliability is uncertain.

6. Charter Fishing and Excursions.

The WG found no database documenting active charter fishing or excursion activity and no specific vessel counts are available making reliable year-to-year trend comparisons impossible. However, outreach to area charter and excursion operations through the Port Safety Forum or direct conversation indicates a modest, steady increase in active vessels since the mid-1990s.

Other current and future waterways activities and uses were assessed using:

1. USACE Dredging Projects.

USACE maintenance and planned dredging projects are another significant indicator about changes in current and future waterways use. The waterways within the Nantucket Sound PARS area (Nantucket Sound Main and Cross Rip, North, North Side, Pollack Rip, Great Round Shoal, and Muskeget Channels) have not been requested for, nor have completed, any maintenance dredging in the past 11 years (2005-2015). The most recent USACE activity in the study area occurred 60 years ago. Pollock Rip Channel was last dredged in 1955, and Cross Rip Channel in 1943. Nantucket Sound's channels remain naturally deep, and there are also no planned or anticipated future dredging improvement or maintenance projects by the USACE.

2. Marine Event Permit Data.

Since 2005, the Coast Guard received approximately 20 applications for federal Marine Event Permits each year for regattas and other marine events occurring within Nantucket Sound. Such events are normally organized and sponsored by a local yacht club or

similar organization, have well-defined schedules, and place certain operating and safety requirements on participants. Most of these events in Nantucket Sound recur annually. Within the past 11 years, there have been no reported accidents or incidents stemming from any of these events, and no complaints or concerns from event organizers or participants regarding vessel routing measures within the sound. The largest single annual organized marine event in Nantucket Sound is the annual Figawi Race, a sailing vessel activity that begins at Hyannis, proceeds to Nantucket, and returns to Hyannis the following day. The sponsor of the event has specifically stated in their previous Applications for Approval of Marine Event that Coast Guard assistance or special measures (such as a safety zone or special local regulation) are not required as marine traffic in Nantucket Sound is such that normal navigation rules (e.g. "Rules of the Road," contained in 33 CFR) adequately address navigation safety for Figawi Race participants.

3. Resource development activities.

A prominent potential future use of Nantucket Sound is the BOEM commercial wind lease issued to Cape Wind Associates (CWA) in 2010. The lease provides CWA the right to develop renewable energy installations in a 46-square mile area within Nantucket Sound. BOEM's approval of a Construction and Operations Plan (COP) in 2011 specifically authorized CWA to construct up to 130 turbines over a 25 square mile area on Horseshoe Shoal (see Figure 3). The lease is currently in a two-year CWA-requested suspension status until July 2017.

The Coast Guard was a cooperating agency engaged by BOEM to meet National Environmental Policy Act requirements which included USCG evaluation of a Navigation Risk Assessment (NRA). Lease stipulations developed through its consultations with BOEM, included design, operating, and reporting conditions, which are intended to help protect mariners and the environment from risks that may be associated with the CWA project. As expressed in the Coast Guard's recommendations in BOEM's 2008 Environmental Impact Study concerning the potential impacts to navigation safety, the Coast Guard determined that the Cape Wind facility, if built as proposed, would, "(1) have a moderate impact on navigation safety, but sufficient mitigation measures are available to reduce risk to an acceptable level, and (2) have a negligible or no adverse impact on Coast Guard missions, and may in some circumstances actually facilitate the prosecution of certain missions."¹

¹ <http://www.boem.gov/Cape-Wind-FEIS/>

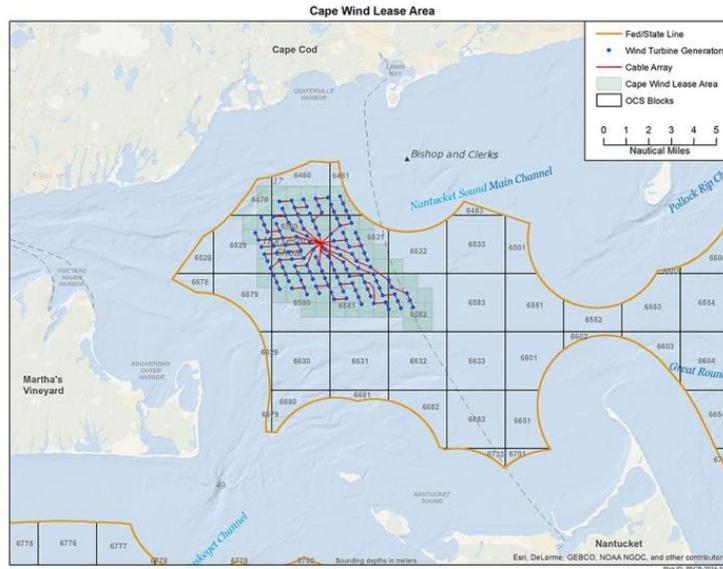


Figure 3: Cape Wind Lease Area

Source:

http://www.boem.gov/uploadedImages/BOEM/Renewable_Energy_Program/Studies/Cape%20Wind%20Project%20Array%20Layout.jpg?n=2980

4. Maritime Incident data.

Maritime incidents are reportable marine casualties as defined in Section 4.05 of Title 46 of the Code of Federal Regulations. These include: loss of main propulsion, injury requiring medical treatment, loss of life, occurrence affecting vessel seaworthiness, allisions, and collisions, all of which could create a hazard to navigation. In the area under review, there were 208 maritime incidents reported from 2005-2015, an average of about 19.5 per year. See Table 3 below for details by Incident type. Figure 4 below shows the incidents where they occurred.

Incident type	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Grand Total
Allision					1		1	1			1	4
Capsize									1			1
Collision		1	2			1	1	1			1	7
Discharge/Release - Pollution		2	6	4	5	3	3	3	3	5	7	41
Fire - Initial		1	1									2
Fire - Reflash									1			1
Flooding - Initial		2							1			3
Fouling				1		1						2
Grounding		1	2	1			1	2	1		1	9
Loss of Electrical Power								1				1
Loss of Stability						1						1
Loss/Reduction of Vessel Propulsion/Steering				1		1					1	3
Material Failure/Malfunction	1	3	5	11	8	7	10	11	15	10	8	89
Personnel Casualty - Death		2	1						1	1		5
Personnel Casualty - Injury				1	3	2	3	2	3	4	4	22
Personnel Fall into Water									2			2
UNSPECIFIED		2	6	2				1	1	2	1	15
Grand Total	1	14	23	21	17	16	19	22	29	22	24	208

Table 3: Maritime Incident Data 2005-2015

Source: U.S. Coast Guard Marine Information for Safety & Law Enforcement (MISLE) Database

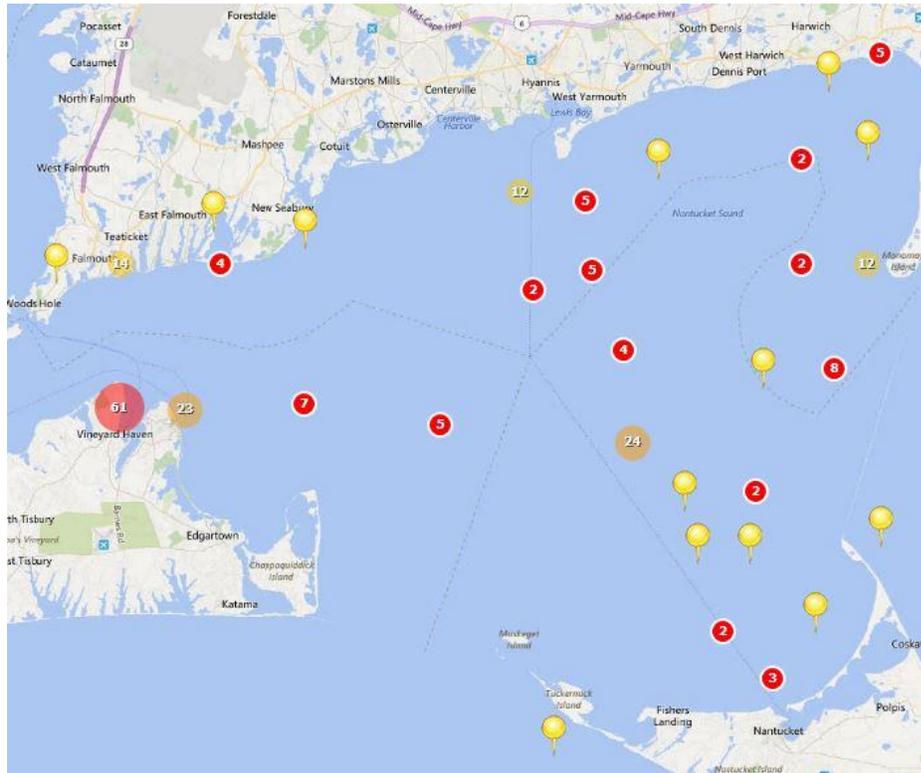


Figure 4: Maritime Incident Data 2005-2015 in Nantucket Sound
 Source: U.S. Coast Guard Marine Information for Safety & Law Enforcement (MISLE) Database

5. Ferry Services.

One of the most frequent users of Nantucket Sound channels and access routes are ferry services operating between Hyannis, Harwich Port, Woods Hole, New Bedford and Quonsot, RI to Martha’s Vineyard and Nantucket. The Steamship Authority and Hy-Line Cruises are the two primary ferry services that operate year-round (see Table 1, page 7, for Steamship Authority activity). Other ferry services are substantially smaller and primarily seasonal. Though a dynamic industry, ferry operators did not indicate any future plans to change service routes or volume, nor have any operators expressed concern with vessel traffic volume or the design or marking of Nantucket Sound channels or access routes.

6. Native American Tribal Activities.

Based on outreach associated with this PARS, the tribes contacted, the Narragansett Indian Tribe and Wampanoag Tribe of Gay Head, did not indicate any current or future navigation safety concerns for Nantucket Sound.

7. Military and National Security.

The primary military activities occurring in Nantucket Sound are Coast Guard operations supporting SAR, Aids to Navigation, and Law Enforcement. U.S. Navy patrol craft may also transit the study area on occasion. These military activities remain consistent in volume and frequency over the last decade and are anticipated to remain so in the future.

8. Northeast Ocean Plan.

The Coast Guard assessed 75 comments provided by the public in response to the Federal Register Notice soliciting feedback about the Draft Northeast Regional Ocean Plan² to learn about any additional waterway use considerations. No new considerations of significance were identified for Nantucket Sound waterways.

No other waterways data informing current or future waterway use trends significant to supporting PARS conclusions about vessel routing measure were identified.

D. Vessel Traffic Pattern Analysis:

As described in the previous section, the WG examined vessel traffic data from multiple sources, including information from Steamship Authority (the largest, most frequent commercial user of Nantucket Sound waterways) annual reports, USACE Waterborne Commerce Statistics, Vessel Monitoring System (VMS) data, recreational vessel statistics, and Automatic Identification System (AIS) data.

Analyzing AIS information, which is limited to the past 3 years, the WG found no significant overall change (increase or decrease) in AIS-equipped vessel traffic patterns. There is an observable slight decrease in the high peaks of fishing vessel data. See Appendix G, Figures 1-3 and Table 1 for AIS data.

Total commercial vessel transits reported to the USACE show that commercial vessel traffic in Nantucket Sound have decreased by approximately 28% from 2010 through 2014 (Appendix G, Table 4), and total Steamship Authority ferry transits have increased by 2.9% over the past eight years (see Table 1, page 7). As noted above, registered recreational vessels in communities adjacent to Nantucket Sound have decreased 7.5% over the last decade.

Overall, indications are that commercial and recreational traffic in Nantucket Sound has decreased slightly over the last decade, while fishing vessel transits have remained steady, and Steamship Authority ferry traffic has increased slightly.

² <https://www.federalregister.gov/articles/2016/05/25/2016-12196/northeast-ocean-plan>

E. Weather Conditions. The WG examined marine weather information and found that average weather conditions in Nantucket Sound have not significantly changed over the past decade. Typical weather in Nantucket Sound as reported in authoritative nautical publications, such as NOAA's Coast Pilot and Eldridge Tide and Pilot Book, continue to be valid. Additionally, the Coast Guard has received no reports from any major users of Nantucket Sound waterways, such as the Steamship Authority, other ferry operators, or marine pilots, that sustained changes in weather patterns have prompted a change in operations in Nantucket Sound.

F. Navigational Difficulty. The best indicators of the existing areas of navigational difficulty and preferences for mariners are weather conditions, discussed above, and high traffic routes, which can be seen in AIS vessel density maps of commercial traffic in the years 2011, 2012 and 2013 from the Northeast Ocean Data Portal (see Appendix G, Figure 3.) The WG found traffic patterns to be highly consistent with aids to navigation marking systems throughout Nantucket Sound waterways. Based on NOAA navigation chart comparisons over the last decade, the underwater geography of Nantucket Sound is largely unchanged. The USACE has no current plans to modify or dredge channels in Nantucket.

Coast Guard Search and Rescue case (SAR) analysis provides another risk management data point. An examination of the past 11 years of Coast Guard SAR data shows a relatively steady level of incidents from 2006 to 2012, and a notable decrease in incidents from 2013 to 2015. Of the 7,065 SAR cases within the Sector Southeastern New England area of responsibility (AOR), 738 (10.4%) are within the Nantucket Sound area addressed by this PARS, with the remaining 90% of SAR cases occurring in Narragansett Bay, Buzzards Bay, Massachusetts Bay, and Rhode Island Sound.

U.S. Coast Guard Sector Southeastern New England Search and Rescue Cases, Nantucket Sound, MA 2005-2015	
2005	36
2006	69
2007	82
2008	73
2009	84
2010	75
2011	84
2012	74
2013	62
2014	50
2015	49
TOTAL:	738

Table 4. U.S. Coast Guard Sector Southeastern New England Search and Rescue Cases, Nantucket Sound, MA

Source: Marine Information for Safety & Law Enforcement (MISLE) Database

Table 4, page 14, above provides an annual count of SAR cases within the Nantucket Sound PARS area, with an average of 67 cases per year, though the last three-year period (2013-2015) has been the safest period during the timeframe examined, with well-below-average incidents of 62, 50, and 49, respectively.

Additionally, an examination of a scatter plot of all 738 SAR cases within the Nantucket Sound PARS area (see Figure 5) shows a concentration of cases in close vicinity of each of the significant ports within the Sound, such as Nantucket Harbor, Chatham Harbor, Hyannis Harbor, Vineyard Haven Harbor, and Woods Hole. An examination of these 738 cases shows that the most frequent need of assistance was from recreational vessels and was due to “disabled vessel” (no propulsion) or “person in the water,” and not due to collisions or groundings.

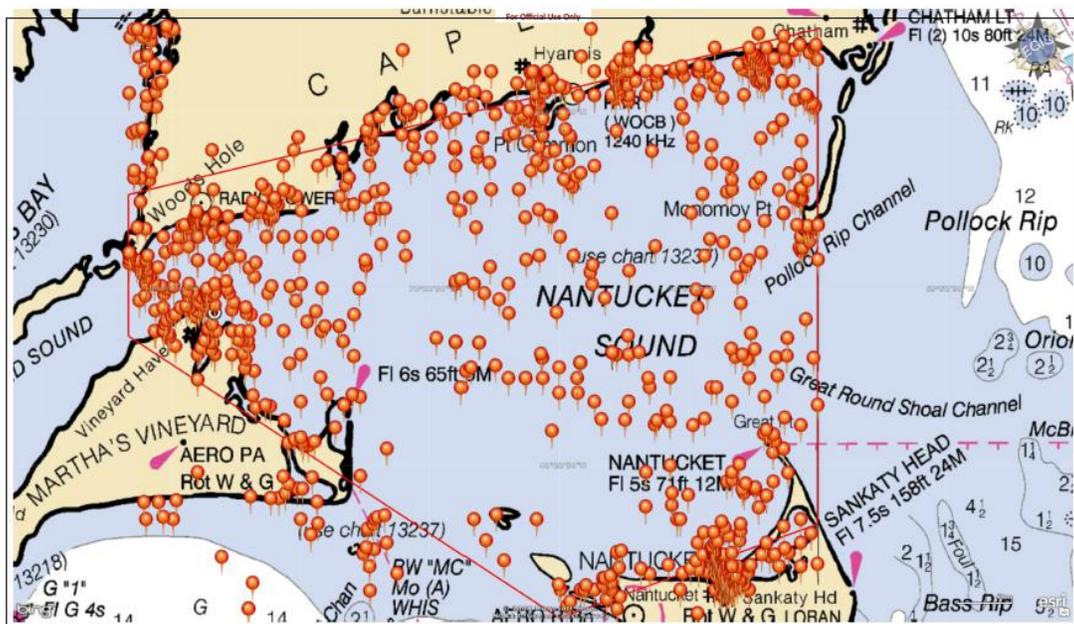


Figure 5: Scatter Plot of SAR Cases within the Nantucket Sound PARS Study Area, 2005-2015
 Source: Marine Information for Safety & Law Enforcement (MISLE) Database

Furthermore, an examination of Coast Guard investigations over the same period of time for certain accidents or incidents³ within the Nantucket Sound PARS area shows that vessel routing measures, or lack thereof, were not causative factors.

³ Not all vessel accidents or incidents are investigated by the Coast Guard. Only those that meet a certain minimum damage threshold, or involve a certain class of vessel (such as passenger carrying vessels, ferries, etc.), or involve significant injury or loss of life are investigated by the Coast Guard.

G. Public Comments: Six comments were received in response to our Federal Register Notice and other outreach efforts:

1. One comment requested that certain buoys in Madaket Harbor, Nantucket, remain on station year-round (they are currently removed from late fall to early spring each year). This request is outside the scope of the PARS but was referred to the Coast Guard Sector Southeastern New England for consideration.
2. One comment requested that dredging be conducted at the head of the harbor at Pocomo Point, Nantucket. This request is also outside the scope of this PARS, and the Pocomo Point harbor entrance is not a federally-maintained waterway. This request was referred to the Massachusetts Department of Conservation and Recreation which has responsibility for maintaining the Pocomo Point harbor channel.
3. One comment from the Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority (the "Steamship Authority") asserted that "any proposed development, such as wind turbine facilities, sand mining operations, or tidal energy producing structures will create significant navigational problems" for the approximately 22,000 annual Steamship Authority ferry transits within Nantucket Sound, and urged establishment of a two-mile separation/buffer zone around any "future endeavors" in the Sound.
4. One comment from the Save Our Sound, The Alliance To Protect Nantucket Sound (the "Alliance") urged that the Nantucket Sound PARS conclude that "no industrial offshore wind energy project can be located in Nantucket Sound because of the negative impacts on marine transportation, navigation safety, and marine environmental protection" and also due to the "severe threats to navigation" posed by the Cape Wind project. The Alliance noted that the Atlantic Coast Port Access Route Study Marine Planning Guidelines "were proposed for application in offshore ocean areas and not for a lakes, bays and sounds environment such as Nantucket Sound" but encouraged the Coast Guard to apply those guidelines "specifically to the industrial wind energy facility proposed by [Cape Wind]."
5. One comment from the owner/operator of Hyannis Marina located in Hyannis, Massachusetts, noted that construction of a "Wind Turbine Plant" in Nantucket Sound is a major navigational safety concern and urged the Coast Guard to protect the Sound from "the possibility of an industrial scale" wind farm. Attached to this comment as enclosures were several pieces of correspondence from 2008 opposed to the then-proposed, and now Federally permitted, Cape Wind project, and also a copy of the executive summary of the 2004 Coast Guard Waterways Analysis and Management System (WAMS) study of the Nantucket Sounds aids-to-navigation (AtoN) system. The Hyannis Marina comment also contended that the mandate of Section 310(b) of the 2015

CGAA could not be addressed meaningfully because “The [Cape Wind] impacts must first be resolved.”

6. One comment from the BOEM described the history of its review of the Cape Wind proposal, including issuance of a federal lease and permit in October of 2010 for a commercial wind energy project in Nantucket Sound. BOEM stated that it, “...is not necessary to revise existing [navigation] regulations with regards to the Cape Wind project.”

IV. DISCUSSION

A. Data: The WG reviewed all four navigation safety factors required by the CGAA of 2015. Based on recent trends and existing uses, neither vessel traffic frequency nor patterns have changed significantly over the past several years. There are no indications of noteworthy changes in future use, other than the construction of the potential Cape Wind Associates offshore wind project. In terms of weather and navigation difficulty, the maritime environment in Nantucket Sound is similar today as it has been for many years, with no indications projecting significant future uses that require regulatory revisions to increase vessel safety. There was also no information in the WAMS Reviews nor the Waterway Criticality Work Sheet validation indicating a need for a change in vessel routing measures. Overall, our broad analysis of the data about the waterway provided no hard data to support new routing measures.

B. Comments: None of the six submitted comments requested or recommended that routing schemes, the primary propose of a PARS, be created in Nantucket Sound. Three comments recommended that the Coast Guard adopt unspecified measures to prohibit development of wind energy facilities in Nantucket Sound.

Three comments pertained to the Cape Wind proposal. CWA was granted a lease by the BOEM in 2010 after a full NEPA review, including potential impacts to navigation safety. One comment asserts that the Coast Guard, “made the error of failing to protect Nantucket Sound navigation,” in its review of the Cape Wind proposal on behalf of BOEM. The U.S. Court of Appeals for the District of Columbia recently affirmed the Coast Guard’s actions and findings in a July 5, 2016, decision⁴.

Concerns that a wind turbine facility in Nantucket Sound, specifically the CWA lease development would adversely impact navigation safety were addressed by the Coast Guard in its NRA evaluation of the Cape Wind proposal and subsequent findings, provided to BOEM, that such a facility would “have a moderate risk on navigation safety, but sufficient mitigation

⁴ <http://law.justia.com/cases/federal/appellate-courts/cadc/14-5301/14-5301-2016-07-05.html#>

measures are available to reduce risk to an acceptable level.” Analysis of AIS data available beginning in 2013 supports the Coast Guard’s recommendations to BOEM in 2008. The Coast Guard considers its review of the CWA lease settled and, until the next steps in the project are undertaken as per the BOEM COP, further finds no cause to revisit the Cape Wind proposal within the scope of this PARS.

C. Atlantic Coast PARS Guideline Assessment: The WG applied the Marine Planning Guidelines of the Atlantic Coast PARS to the current port access routes of Nantucket Sound and determined that no further routing measures are required. The Atlantic Coast PARS Marine Planning Guidelines were intended for application in offshore ocean areas, not for lakes, bays, or sounds, and do not correlate well for application in Nantucket Sound. Nonetheless, the WG applied those Guidelines (under the “Coastwise or Coastal Shipping Routes” guidance) as closely as possible to the waterways of Nantucket Sound to determine if additional routing measures may be prudent, and the WG found that no new regulations, routes, or navigational modification were required.

There is no common international standard that specifies minimum distances between shipping routes and fixed structures but, fixed structures in the offshore environment must not interfere with navigation. Atlantic Coast PARS Marine Planning Guidelines provide general guidelines for siting of multiple structures near shipping routes and established ships routing measures. Below is the WG assessment on the applicability of each Marine Planning Guideline to Nantucket Sound:

1. Port Approaches and Traffic Separation Schemes

Planning Guideline:

- 2 NM from the parallel outer or seaward boundary of a traffic lane. (Assumes 300-400m vessels)
- 5 NM from the entry/exit (terminations) of a TSS

These recommendations are based on generic deep draft vessel maneuvering characteristics and are consistent with existing European guidelines. They account for the minimum distances for larger vessels to maneuver in emergency situations.

The 5 NM mile separation from the entry and exit of a TSS is necessary to enable vessels to detect one another visually and by radar in areas where vessels are converging and diverging from and to multiple directions.

Assessment: Nantucket Sound has no TSS, Separation Buffer, or other regulatory traffic structure, therefore these related guidelines do not apply.

2. Coastwise or Coastal Shipping Routes:

Vessels that tend to follow the coastline are typically smaller vessels and vessels that cannot safely transit too far offshore due to sea state limitations. The necessary sea space for vessels to safely maneuver is determined by the size and maneuverability of vessels and density of vessel traffic. When determining routes near shore, the depth of water and location of underwater obstructions must be considered, especially if vessel routes will be displaced by the introduction of fixed structures. Vessels of particular concern are those towing astern on a wire. In this configuration, their footprint is large, maneuvering ability is constrained, and the catenary of the tow wire will dictate significantly larger water depths than the drafts of the tug or barge alone.

Planning Guidelines:

- Identify a navigation safety corridor to ensure adequate sea area for vessels to transit safely.
- Provide inshore corridors for coastal ships and tug/barge operations.
- Minimize displacement of routes further offshore.
- Avoid displacing vessels where it will result in mixing vessel types.
- Identify and consider cumulative and cascading impacts of multiple offshore renewable energy installations (OREIs), such as wind farms.

Assessment:

Current vessel traffic patterns sufficiently organize traffic through Nantucket Sound. No additional navigation safety corridors or any inshore corridors are needed to ensure adequate sea area for vessels to transit safely. Additionally, Nantucket Sound is bounded by land along most of its border, by Martha's Vineyard and Nantucket to the south and west, and Cape Cod to the north, making it a very self-contained area. The best offshore route for deep draft vessels to avoid Nantucket Sound is a TSS from the NY/NJ approaches to Boston, the Nantucket to Ambrose and the Boston Harbor Traffic Lanes, located about 40 miles south and 50 miles east of Nantucket. Recent vessel trends, and current and predicted future waterway uses in Nantucket Sound do not indicate a need to consider regulatory vessel routing changes because no vessels will be displaced or mixed with other vessel types with which they do not already interact. The navigational risk and impact to vessel traffic from possible future installation of the Cape Wind energy project has been assessed by the Coast Guard. As mandated by the Maritime Transportation Act of 2006 and the Coast Guard through regulation, terms and conditions necessary to provide for navigation safety in the proposed lease area are included in Appendix B of the BOEM Final Environmental Impact Statement (January 2009)⁵ and Section 13 of the 2010 commercial lease. These terms and conditions remain valid.

⁵ <http://www.boem.gov/Renewable-Energy-Program/Studies/FEIS/Appendix-B---Agency-Correspondence.aspx>

V. ALTERNATIVES

The WG considered three alternatives:

Alternative 1: Make no regulatory changes to existing vessel routing measures. The current vessel routing measures and federal channels in Nantucket Sound have historically provided for the safe navigation of vessels en route to and from ports and harbors within the Sound, and the WG believes this will continue until conditions change such that subsequent PARS analysis may be appropriate.

Alternative 2: Modify the physical and/or electronic aids to navigation systems in Nantucket Sound. This could include providing additional physical or electronic aids (buoys, AIS AtoNs, beacons, etc.), or changing the characteristics of current aids to mitigate new navigational safety challenges.

Alternative 3: Add Recommended Vessel Routes (RVRs; i.e., “green lanes”) to nautical charts. The Coast Guard adopted RVRs in Buzzards Bay, Narragansett Bay, and Rhode Island Sound in 2004. Essentially these RVRs simply record on nautical charts the existing preferred traffic patterns while affording no additional protection or privilege for mariners using the routes and imposing no additional burdens on mariners. They are not regulatorily binding, but provide awareness for all mariners regarding routes frequented by commercial vessels. Anecdotal mariner feedback has consistently lauded the effectiveness of these RVRs, supporting applicability in Nantucket Sound.

Additionally, after considerable public collaboration, the Coast Guard recently implemented AtoN improvements in Woods Hole Pass (a complicated and sometimes confusing route leading from Vineyard Sound to Buzzards Bay) that included changing the number, location, and configuration of certain aids. A similar approach to the AtoN system in Nantucket Sound may provide similar results for those areas, if any, where mariners experience particular difficulty navigating.

VI. CONCLUSION

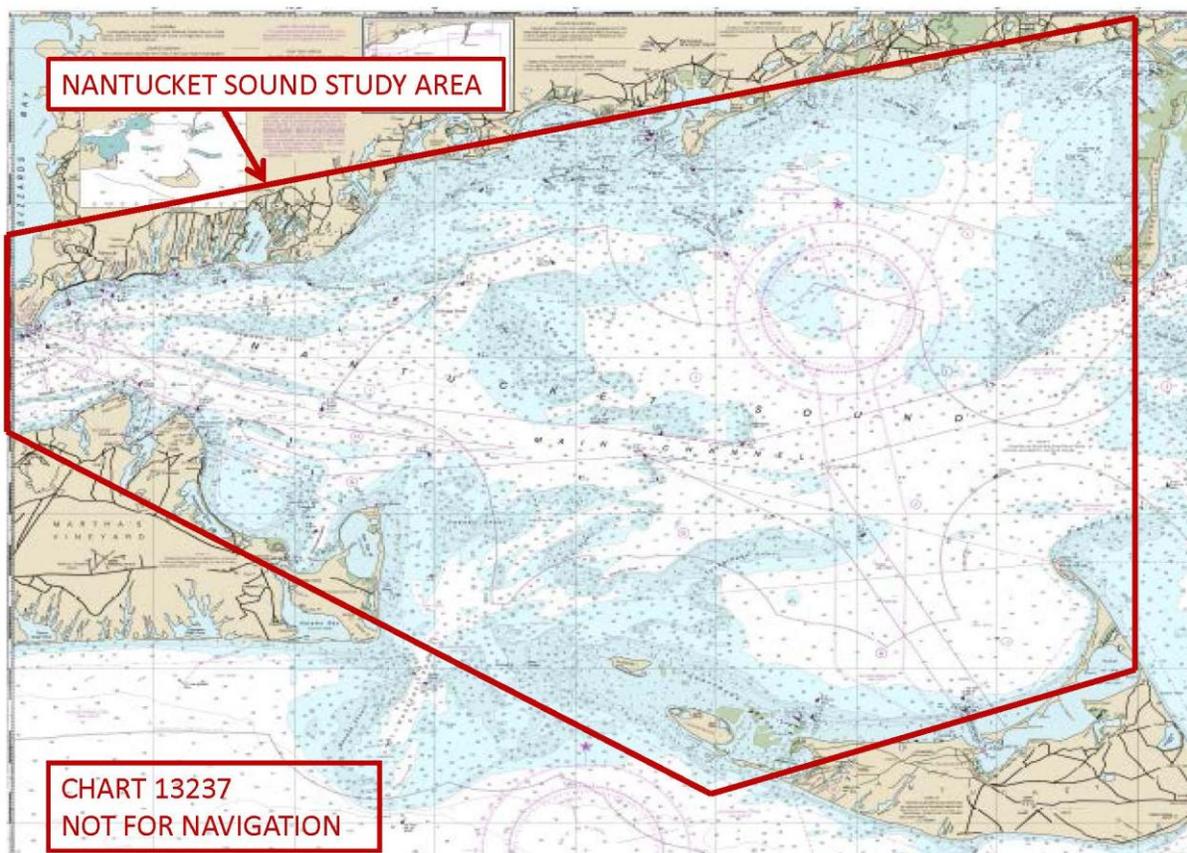
As required by the CGAA of 2015, the WG considered whether it should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as vessel traffic density, vessel traffic patterns, weather conditions, or navigation challenges in the study area. The WG analyzed all available sources of data relevant to this process, including existing and potential traffic patterns, existing regulations, public submissions, and other factors. The WG identified three different potential outcomes to consider within this study. Based on our review, the WG recommends no regulatory changes to existing vessel routing measures (Alternative 1).

The Coast Guard actively monitors all waterways subject to its jurisdiction to help ensure navigation safety. As such, the Coast Guard will continue to monitor Nantucket Sound for changing conditions and consider appropriate actions, such as recommend vessel routes or more extensive use of electronic AtoN, to promote waterway and user safety.

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APPENDIX A

Nantucket Sound Port
Access Route Study
(PARS) Area



APPENDIX B

Definition of Terms

1. Area to be avoided or ATBA means a routing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all vessels, or certain classes of vessels.
2. Deep-water route means a route within defined limits, which has been accurately surveyed for clearance of sea bottom and submerged obstacles as indicated on nautical charts.
3. Fairway means a lane or corridor in which no artificial island or structure, whether temporary or permanent, will be permitted so that vessels using U.S. ports will have unobstructed approaches.
4. Inshore traffic zone means a routing measure comprising a designated area between the landward boundary of a traffic separation scheme and the adjacent coast, to be used in accordance with the provisions of Rule 10(d), as amended, of the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS), 33 CFR 83.
5. Marine Environment, as defined by the Ports and Waterways Safety Act, means the navigable waters of the United States and the land resources therein and thereunder; the waters and fishery resources of any area over which the United States asserts exclusive fishery management authority; the seabed and subsoil of the Outer Continental Shelf of the United States, the resources thereof and the waters superjacent thereto; and the recreational, economic, and scenic values of such waters and resources.
6. No anchoring area means a routing measure comprising an area within defined limits where anchoring is hazardous or could result in unacceptable damage to the marine environment. Anchoring in a no anchoring area should be avoided by all vessels or certain classes of vessels, except in case of immediate danger to the vessel or the persons on board.
7. Precautionary area means a routing measure comprising an area within defined limits where vessels must navigate with particular caution and within which the direction of traffic flow may be recommended.
8. Recommended route means a route of undefined width, for the convenience of vessels in transit, which is often marked by centerline buoys.
9. Recommended track means a route which has been specially examined to ensure so far as possible that it is free of dangers and along which vessels are advised to navigate.

10. Regulated Navigation Area or RNA means a water area within a defined boundary for which regulations for vessels navigating within the area have been established under 33 CFR part 165.
11. Roundabout means a routing measure comprising a separation point or circular separation zone and a circular traffic lane within defined limits. Traffic within the roundabout is separated by moving in a counterclockwise direction around the separation point or zone.
12. Separation Zone or separation line means a zone or line separating the traffic lanes in which vessels are proceeding in opposite or nearly opposite directions; or from the adjacent sea area; or separating traffic lanes designated for particular classes of vessels proceeding in the same direction.
13. Traffic lane means an area within defined limits in which one-way traffic is established. Natural obstacles, including those forming separation zones, may constitute a boundary.
14. Traffic Separation Scheme or TSS means a routing measure aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes.
15. Two-way route means a route within defined limits inside which two-way traffic is established, aimed at providing safe passage of ships through waters where navigation is difficult or dangerous.
16. Vessel routing system means any system of one or more routes or routing measures aimed at reducing the risk of casualties; it includes traffic separation schemes, two-way routes, recommended tracks, areas to be avoided, no anchoring areas, inshore traffic zones, roundabouts, precautionary areas, and deep-water routes.

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APPENDIX C

Abbreviations and Acronyms

AOR – Area of Responsibility
ATBA – Area to be Avoided
AtoN – Aids to Navigation
AIS – Automatic Identification System
BOEM – Bureau of Ocean Energy Management
CFR – Code of Federal Regulations
CGAA – Coast Guard Authorization Act
COLREGS – International Regulations for Preventing Collisions at Sea 1972
COP – Construction and Operations Plan
COTP – Captain of the Port
CWA – Cape Wind Associates
FR – Federal Register
IMO – International Maritime Organization
NAVCEN – Coast Guard Navigation Center
NEPA – National Environmental Policy Act
NMFS – National Marine Fisheries Service
NM – Nautical Mile
NOAA – National Oceanic and Atmospheric Administration
NRA – Navigational Risk Assessment
OREI – Offshore Renewable Energy Installation
PARS – Port Access Route Study
PWSA – Ports and Waterways Safety Act
RNA – Regulated Navigation Area
SAP – Site Assessment Plan
SAR – Search and Rescue
SOW – Statement of Work
TEU – Twenty-foot Equivalent Unit
TSS – Traffic Separation Scheme
USACE – United States Army Corps of Engineers
UK MGN – United Kingdom Maritime Guidance Note
U.S. – United States
USC – United States Code
USCG – United States Coast Guard
VHF – Very High Frequency
VMS – Vessel Monitoring System
WAMS – Waterways Analysis Management Study
WG – Work Group
WEA – Wind Energy Area

APPENDIX D

Nantucket Sound PARS
Contact List

12 Meter Charters
 A & J Boat Corp.
 A&R Marine Corp/ DBA Prudence Island & Bay Island
 Transport
 Absolute Sport Fishing
 AC Leasing Corp.
 Acushnet - Emergency Management Agency
 Adirondack Sailing Excursions
 ALBATROSS
 Allen Harbor Marine Service Inc.
 Althea K Sport Fishing
 America's Cup Charters - Intrepid Charters, LLC -
 Nefertiti Charters, LLC
 ANG 1st WWD-CST
 Apponaug Harbor Marina (Dickerson's Marina, Inc.)
 Aquinnah - Fire Department
 Aquinnah - Harbormaster
 Aquinnah - Police
 Arabella Sail Charters
 Atlantic Commercial Diving Co
 Atlantic Star Lines, LLC
 Avondale Boatyard
 Bannister's Wharf Marina
 Barden's Boat Yard, Inc.
 Bareboat Sailing Charters
 Barnstable - Fire Department - Centerville, Osterville,
 Marstons Mills (COMM)
 Barnstable - Fire Department - West Barnstable
 Barnstable - Harbormaster
 Barnstable - Police Department
 Barnstable County
 Barnstable County Department of Health & Environment
 (REPC)
 Barnstable County Sheriff's Department
 Barnstable County Sheriff's Office
 Barnstable Fire Department
 Barnstable HarborMaster
 Barrington - Fire Department
 Barrington Harbormaster
 Barrington Yacht Club
 Barrington Yacht Club / US Sailing
 Bay Fuel Inc.
 Bay Marine, Inc.
 Bay Queen Cruises / Spirit of Newport / Rhode Island
 Cruise
 Bayline Boatyard & Transport
 Belle Vue Yachting Center (Point Judith Marina)
 Beth Ann Fishing Charters
 Beverly Yacht Club
 Bigeye Charters
 Blackstone Valley Tourism Council
 Blackstone Valley Tourism Council (Warwick Harbor
 Master)
 Block Island Boat Basin
 Block Island Parasail & Watersports
 Blount Boats, Inc.
 Blount Small Ship Adventures
 Borden & Remington Corporation

Borden Light Marina
 Borden Light Marine Contracting, Inc.
 Boston Coastline Pilots
 Boston Coastwise Pilots
 Boston Harbor Cruises
 Boston Harbor Pilot Association, LLC
 Bourne - Department of Natural Resources
 Bourne - Fire Department
 Bourne Enterprise / Sandwich Enterprise
 Bowen's Wharf Co.
 Brayton Point Energy, LLC
 Brayton Point LLC
 Brewer Yacht Yard at Cowesett
 Brewster - Conservation & Natural Resources
 Brewster - Fire Department
 Brewster - Police Department - Boat Patrol
 Bristol - Harbor Master
 Bristol - Police Department
 Bristol Marine
 Bristol Yacht Club
 Bucky Barlow's Boat Yard, LLC
 Burr Brothers Boats, Inc.
 Buzzards Bay Coalition
 Cape Cod Bay Sail, Inc
 Cape Cod Bay Watersports
 Cape Cod Chronicle
 Cape Cod Commercial Hook Fishermen's Association -
 Nantucket Soundkeeper
 Cape Cod Duckmobiles
 Cape Cod Times
 Capital Terminal Company
 Capt. John Boats
 Capt. John Boats - Cape Cod Cruises
 Capt. Leroy's Fishing Parties
 Capt. O'Connell's
 Casey's Oil
 CAT Boat Rides, Inc.
 CEE JAY Corporation
 Center for Coastal Studies
 Champlin's Block Island Marina
 Charlestown - Harbor Master
 Charlestown - Police Department
 Chatham - Fire Department
 Chatham - Harbor Master (President - C&I HMA)
 Chatham - Police Department
 Chatham Boat Company
 Chatham Water Tours
 Chatham Yacht Basin
 Chilmark - Fire Department
 Chilmark - Harbor Master
 Chilmark - Police Department
 Clean Harbors
 Clean Harbors Environmental Services
 Coalition for Buzzards Bay
 Coastal Diving Services LLC
 Commonwealth Fusion Center/MA State Police
 Community Boating Center
 Conanicut Marine Services, Inc.

Conanicut Yacht Club
 Concordia Company, Inc.
 Cove Haven Marina (Brewer)
 Cranston - Fire Department
 Cranston - Harbor Master
 Crosby Yacht Yard, Inc.
 Cross Sound Ferry (JESSICA W - New London to BI)
 Cuttyhunk Boat Lines
 Cuttyhunk Ferry Company Inc.
 Cuttyhunk Water Taxi
 Dartmouth - Harbormaster
 Deepwater Wind
 Dennis - Police Department (Cape Cod Regional Law
 Enforcement Council)
 Department of Homeland Security - US Customs and
 Border Protection
 DHS
 DHS- TSA
 Dog Gone Sailing Charters
 Dolphin Fleet of Provincetown
 Dominion Energy - Brayton Point
 Dukes County Emergency Management
 East Bay Newspapers
 East Greenwich - Harbor Master
 East Greenwich - Police Department
 East Greenwich Yacht Club
 East Marine
 East Passage Yachting Center
 East Providence - Fire Department - Marine Unit
 East Providence - Harbor Master
 East Providence - Police Department
 Eastham - Department of Natural Resources
 Eastham - Fire Department
 Eastham - Natural Resources Officer
 Edgartown - Fire Department
 Edgartown Police Dept
 Edgartown Yacht Club
 ENDEAVOR
 Enterprise Terminals and Storage, LLC (EPCO, Inc.)
 EPA Region 1
 Esco Terminal
 Exxon Mobil
 ExxonMobil
 Fairhaven - Harbor Master
 Fairhaven - Police Department (SEMLEC)
 Fairhaven Police
 Fairhaven Police Dept
 Fairhaven Shellfish Dept.
 Fairhaven Shipyard & Marina, Inc.
 Fall River - Emergency Management (LEPC)
 Fall River - Harbor Master
 Fall River - Police Department
 Fall River Harbor Master
 Fall River Herald News
 Fall River Line Pier, Inc.
 Fall River Police department
 Fall River Police Dept
 Falmouth - Fire Department (LEPC)
 Falmouth - Harbor Master
 Falmouth Marine

Federal Air Marshall Service
 Fiddler's Cove Marina (Brewer)
 FISHTALES
 FLYER Catamaran
 Flyer's Boat Rentals
 Fortier Boats
 Frances Fleet
 Frank Corp. Environmental Services
 Frogmen Divers, Inc.
 Gannon and Benjamin Marine Railway
 Gansett Cruises
 General Dynamics - Electric Boat
 Genon
 Genon Canal LLC
 Ginny G Cape Cod Fishing Charters
 Global Companies LLC
 Global Petroleum - Sandwich
 Goat Island Marina
 Goff & Page Company
 Goff and Page
 Golden Eagle Deep Sea Fishing
 Great Harbor Yacht Club
 Great Lakes Dredge & Drydock Co.
 Great Lakes Dredge and Dock Company
 Green Pond Tackle and Marina
 Greenwich Bay Marina (Brewer)
 Harbor Fuel Oil Corporation
 Harbor Launch Nantucket
 Harborside Inn
 Harwich - Fire Department
 Harwich - Police Department
 Harwich Port Boat Yard, Inc.
 Hayward Industries, Inc
 HEL-CAT II
 Helen H Deep Sea Fishing
 Hexagon Metrology Inc
 High Tides Charter & Guide Service
 Holcim US (St. Lawrence Cement Co.)
 Holland & Knight LLP
 Hooked Up Charters
 Hudson Terminal Corp. / Northeast Petroleum Terminal
 (NEPT)
 Hunt Marine Towing & Transport
 Hyannis - Fire Department
 Hyannis Pirate Adventures
 Hyannis Yacht Club
 Hy-Line Cruises - Hyannis Harbor Tours, Inc.
 Ida Lewis Yacht Club
 Inchcape Shipping Services
 Inland Fuel Terminals
 International Longshoremen's Association Local 2001
 Interstate Navigation Company - "The Block Island
 Ferry"
 Interstate Navigation Company - "The Block Island
 Ferry"
 Interstate Navigation Company - "The Block Island
 Ferry"
 Island Commuter Corp.
 J & J Fishing Corporation - DBA: Hyannis WHALE
 WATCHER

J & J Marine
 J Class Management, Inc.
 J.P. Noonan
 Jamestown - Fire Department
 Jamestown - Harbor Master
 Jamestown - Police Department
 Jamestown Boat Yard
 Jamestown Press
 Johnson & Wales University - Safety & Security
 Johnson and Wales University
 JUST DO IT TOO
 Kamelot Marine Services - LNG
 Kelly J Sportfishing Charters
 Kelly's Marine, Inc.
 Kingman Yacht Center
 Lawrence Lynch Corp.
 Lehigh Northeast Cement
 Lincoln - Lime Rock Fire District
 Little Compton - Fire Department
 Little Compton - Harbor Master
 Little Compton - Police Department
 LMS Shipmanagement, INC - MV ENERGY
 ENTERPRISE
 MacDougall's Cape Cod Marine Service, Inc.
 Machaca Charters
 MAKO II
 Marine Safety Consultants
 Marine Safety Consultants, Inc
 Marine Safety Consultants. INC
 Marion - Fire Department
 Marion - Harbormaster
 Maritime Consultants
 Maritime International Inc.
 Martha's Vineyard Times
 Mashpee - Harbormaster
 Mashpee - Police Department
 Mass Department of Environmental Protection -
 Emergency Response - SERO
 Mass Department of Environmental Protection - SERO
 Mass Division of Fisheries and Wildlife
 Mass Division of Marine Fisheries
 Mass Environmental Police
 Mass Marine Trade Association
 Mass Maritime Academy
 Mass Maritime Academy - T/S KENNEDY
 Mass Office of Coastal Zone Management
 Mass Office of Coastal Zone Management / Buzzards
 Bay Basin
 Mass Office of Coastal Zone Management / Regional
 Coordinator
 Mass State Police - Marine Unit
 Massachusetts Air National Guard
 Massachusetts Environmental Police
 Massachusetts Governor's Seaport Advisory Council
 Massachusetts Maritime Academy
 MAT Marine - Hallam Marine Construction, Inc.
 Mattapoissett - Fire Department
 Mattapoissett - Harbor Master
 Mattapoissett - Police Department - Mass Chiefs of Police
 Mattapoissett Boatyard, Inc.

Mattapoissett Harbormaster
 Maverick Charters Ltd.
 Metals Recycling
 Middletown - Fire Department
 Middletown - Harbor Master
 Middletown - Police Department
 Middletown - Police Department - Boat Patrol
 Middletown - Town Administrator
 Millway Marina
 Molchan Marine Services
 Monomoy Island Ferry
 Moran Environmental Recovery LLC
 Moran Shipping
 Moran Shipping Agencies
 Moran Shipping Agencies, Inc.
 Moran Towing Corp
 Moran Towing of New York, New Jersey
 Motiva Enterprises LLC
 MRW Marine Services
 MSP-Critical Infrastructure Program
 Nantucket - Fire Department
 Nantucket - Harbor Master
 Nantucket - Harbor Master - MA Harbormasters
 Association
 Nantucket Adventures
 Nantucket Boat Basin
 Nantucket Fire Dept
 Nantucket Moorings
 Nantucket Yacht Club
 Narragansett - Harbormaster - Bonnet Shores
 Narragansett Bay Commission
 Narragansett Fire Department
 Narragansett Indian Tribe
 Nation Oceanographic and Atmospheric Administration
 National Grid
 National Response Corporation
 Nauset Marine, Inc.
 Naushon Ferries
 Neat Lady Fishing, LLC
 New Bedford - Emergency Management Department
 New Bedford - Police Department - Port Security Unit
 New Bedford Fire
 New Bedford Fire Department
 New Bedford Fire Dept
 New Bedford Harbor Development Commission
 New Bedford Harbor Development Committee
 New Bedford Marine Rescue - TowBoat US
 New Bedford Police
 New Bedford Police Port Security Unit
 New Bedford Seafood Consulting
 New Bedford Standard Times
 New Bedford State Pier - Mass DCR
 New Bedford Yacht Club
 New England Fast Ferry Company / Bay State Cruise
 Company
 New England Stevedore Service Corp.
 New Seabury Marina
 New Shoreham - Harbor Master
 New Shoreham - Police Department
 New York Yacht Club

Newport - Fire Department
 Newport - Harbor Master (Perotti Park)
 Newport - Police Department
 Newport Cruise Company
 Newport Daily News
 Newport Shipyard
 Newport Yacht Club
 Newport Yachting Center Marina
 Nice Day Too Fishing Charters
 Niemiec Marine
 NOAA Northeast Marine Support Facility
 NOAA Ship OKEANOS EXPLORER
 North Kingstown - Fire Department
 North Kingstown - Harbor Master (North Kingstown
 Town Wharf)
 North Kingstown - Police Department
 North Kingstown - Police Department.
 North Kingstown Fire Department
 North Shore Charters
 Northeast Marine Pilot
 Northeast Marine Pilots
 Northeast Marine Pilots Inc.
 Northeast Regional Ocean Council
 Northern Pelagic Group, LLC
 Northside Marina at Sesuit Harbor
 Norton's Shipyard and Marina Inc.
 Norwegian Cruise Lines - (Agents)
 NRG - Somerset Power LLC
 Oak Bluffs - Harbor Master - Oak Bluffs Marina
 Oak Bluffs - Police Department
 Oak Bluffs - Police Department (OB Harbor Terminal)
 Office of Congressman Jim Langevin
 Offshore Wind Development Coalition
 Oil Heat Institute
 Oldport Marine Services, Inc.
 Olmsted Marine Service
 Orleans - Fire Department
 Orleans - Harbormaster
 Orleans - Police Department
 OS Security Associates Inc
 Oyster Harbors Marine, Inc.
 Oyster River Boat Yard
 P. K. O'Connell Marina
 Parker's Boatyard, Inc.
 Patriot Party Boats, Inc
 Pawtucket - Fire Department
 Pawtucket - Police Department
 Pawtuxet Cove Marina
 Peck's Boats Inc.
 Pettis Boat Yard and Yacht Sales
 Pier Oil Co. - TB 450, TB 451
 Pirate Adventures Orleans
 Plymouth - Fire Department
 Plymouth - Office of Emergency Preparedness
 Plymouth County Sheriff's Department
 Pope's Island Marina
 Portsmouth - Police Department - Harbor Master
 Portsmouth Fire Department
 Portuguese Princess Excursions
 Providence - Emergency Management Agency

Providence - Fire Department - (LEPC 2)
 Providence - Police Department
 Providence - Police Department - Marine Patrol
 Providence Emergency Management
 Providence Emergency Management Agency (PEMA)
 Providence Fire Department
 Providence Fire Marine 1
 Providence Journal
 Providence Piers
 Providence River Boat Co.
 Providence Steamboat - McAllister Towing of
 Narragansett Bay
 Provincetown - Fire Department
 Provincetown - Harbor Master (MacMillan Pier)
 Provincetown - Police Department
 ProvPort Inc. - Waterson Terminal Services, LLC
 Prudence Island Ferry
 Prudence Island Volunteer Fire Department
 Quonset Development Corporation
 R.M. Packer Co., Inc.
 R.M. Packer Co., Inc. - Tisbury Towing
 Ram Point Marina, Inc.
 Reinauer Transportation Company
 Reinhauer Transportation
 Rescue Captain BIRS
 RHH Associates
 Rhode Island Cruise Co. - (Water Street Docks)
 Rhode Island EMA
 Rhode Island Mooring Services, Inc.
 Rhode Island Office of Energy Resources
 Rhode Island State Police
 Rhode Island Yacht Club
 RI Army National Guard
 RI Civil Air Patrol - USAF Auxiliary
 RI Coastal Resources Management Council
 RI Committee for Occupational Safety and Health
 RI DEM - Boating and Commercial Licensing Office
 RI DEM - Director's Office
 RI DEM - Division Of Coastal Resources (Galilee State
 Pier #3)
 RI DEM - Emergency Response
 RI DEM - Law Enforcement
 RI Emergency Management Agency
 RI Lobstermen's Association, Inc.
 RI State Police
 RI State Senator's Staff
 RI State Yachting Committee
 RI Turnpike & Bridge Authority
 RIBI Security
 Ryan Marine, Inc.
 Ryder's Cove Boat Yard
 Safe Sea RI
 Safe/Sea
 Safe/Sea - TowBoat US Narragansett Bay
 Safe/Sea Marine Rescue
 Sail Martha's Vineyard
 Sail Newport
 Sandwich - Fire Department
 Sandwich - Natural Resources Officer
 Sandwich - Police Department

Save the Bay
 Save The Bay - Narragansett Bay
 Save The Bay Inc. - MV ALLETTA MORRIS
 Schnitzer Steel
 Sea Education Association
 Sea Fuels Marine Services - CO-OP NO. 4
 Sea Hawk Charters
 Sea Tow
 Sea Tow Cape and Islands
 Sea Tow Rhode Island
 Sea Tow South Shore
 Seaboats Inc.
 Seacope Yacht Charters - Gleam Charters, Inc.
 Seacope Yacht Charters - Northern Light Charters. Inc.
 Seafreeze, Ltd.
 Senator Sheldon's aid
 Seven B's V Deep Sea Fishing
 Shell Trading (US) Company (Motiva)
 Ship Shops Inc.
 Shoreline Diving Services
 Sightsailing, Inc.
 Simms
 Skippy's Pier I Marina
 Snappa Fishing & Diving Charter
 Snug Harbor Marina
 Somerset - Fire Department
 Somerset - Police Department
 Sortie Charters
 South Kingstown - Fire Department - Union
 South Kingstown - Harbor Master
 South Kingstown - Police Department
 South Kingstown Harbormaster
 Southern Rhode Island Newspapers
 Sprague Energy
 Sprague Energy Corp.
 Sprague Operating Resources LLC
 St. Georges School
 Standish Boat Yard
 Steamship Authority
 Steamship Authority Board of Governors
 Stonebridge Marina - Atlantic Boats
 Striper Marina
 SUE-Z
 Sun Tan Yacht Charters
 Tabor Academy
 TAKE IT E-Z
 Tall Ships RI
 Taylor's Point Marina
 The Black Dog Tall Ships - a.k.a. The Coastwise Packet
 Company
 The Inquirer and Mirror
 The Nature Conservancy
 The Response Group
 The Sunken Ship - Diving and Salvage
 Three Flags Holding Company
 Three Flags Holding Company, LLC
 Tisbury - Fire Department
 Tisbury - Harbor Master
 Tisbury Towing and Transportation
 Tiverton - Harbor Master

Toen of Barrington
 Tomohawk Charters
 Town of Dennis
 Town of Mattapoisett
 Town of Nantucket
 Town of Tisbury, MA
 Tripps Boatyard & Marina - F. L. Tripp & Sons, Inc.
 Truro - Fire Department
 Truro - Harbormaster
 Tucker-Roy Marine Towing & Salvage
 U.S. Army Corps of Engineers (CCC)
 U.S. Customs and Border Protection
 U.S. Department of Commerce - NOAA - Office of
 Coast Survey
 U.S. Department of Commerce - NOAA - Stellwagen
 Bank National Marine Sanctuary
 U.S. Department of Commerce - NOAA Fisheries
 Service - Office of Law Enforcement
 U.S. Department of Commerce - NOAA Fisheries
 Service - Ship Strike Reduction
 U.S. Department of Homeland Security - Customs &
 Border Protection - Boston
 U.S. Department of Homeland Security - Customs &
 Border Protection - New Bedford
 U.S. Department of Homeland Security - Customs &
 Border Protection - Providence
 U.S. Department of Homeland Security - FEMA Region
 1
 U.S. Department of Homeland Security - Transportation
 Security Administration - Providence
 U.S. Department of Interior - National Park Service -
 Cape Cod National Seashore
 U.S. Environmental Protection Agency - Region I
 U.S. Navy - Naval Station Newport - Fire
 Department/Emergency Management Coordinator
 U.S. Rep James Lanqevin
 U.S. Senator Sheldon Whitehouse
 United States Coast Guard Auxiliary
 Univar
 Univar Usa
 URI College of the Environment and Life Sciences
 URI Graduate School of Oceanography - Coastal
 Resource Center
 URI Graduate School of Oceanography - R/V
 ENDEAVOR
 US Army Corps of Engineers
 US Coast Guard Auxiliary
 US Customs and Border Protection Agency
 US Navy Region Atlantic
 USCG Auxiliary
 USCG Auxiliary - D1NR
 USCG Auxiliary - Division 10 - Flotilla 7
 USCG Auxiliary - Division 10 (Cape & Islands)
 USCG Auxiliary - Division 10 (Central Mass)
 USCG Auxiliary - Division 11 - Flotilla 1 (Chatham)
 USCG Auxiliary - Division 11 - Flotilla 2 (Woods Hole)
 USCG Auxiliary - Division 11 - Flotilla 3 (Lewis Bay,
 Barnstable)
 USCG Auxiliary - Division 11 - Flotilla 6 (Nauset)
 USCG Auxiliary - Division 11 - Flotilla 7 (Nantucket)

USCG Auxiliary - Division 11 - Flotilla 8 (Oyster Harbor, Sandwich)
 USCG Auxiliary - Division 11 (Cape & Islands)
 USCG Auxiliary - Division 6 - Flotilla 18 (Westport)
 USCG Auxiliary - Division 6 - Flotilla 3 (Onset)
 USCG Auxiliary - Division 6 - Flotilla 5 (New Bedford)
 USCG Auxiliary - Division 6 - Flotilla 7 (Marion)
 USCG Auxiliary - Division 6 (Buzzards Bay)
 USCG Auxiliary - Division 7 - Flotilla 2 (East Providence)
 USCG Auxiliary - Division 7 - Flotilla 6 (Warwick)
 USCG Auxiliary - Division 7 - Flotilla 7 (Wickford)
 USCG Auxiliary - Division 7 - Flotilla 8 (Providence)
 USCG Auxiliary - Division 7 (Narragansett West Bay)
 USCG Auxiliary - Division 8 - Flotilla 3 (Bristol)
 USCG Auxiliary - Division 8 - Flotilla 4 (Somerset)
 USCG Auxiliary - Division 8 - Flotilla 6 (Castle Hill)
 USCG Auxiliary - Division 8 (Narragansett East Bay)
 USCG Auxiliary - Division 8 (Narragansett East Bay) - AVMC
 USCG Civil Engineering Unit Providence
 USCG D1 (dpi)
 USCG D1 (dpw)
 USCG D1 (dpw) - P-ATON
 USCG D1 (dpw-1)
 USCG D1 (dpw-3)
 USCG D1 (drmp)
 USCG District One
 USCG MSD Cape Cod
 USCG MSD New Bedford
 USCG Sector Northern New England
 USCG Sector Southeastern New England
 USCG Sector Southeastern New England - Inspections Div
 USCG STA Brant Point
 USCG STA Cape Cod Canal
 USCG STA Castle Hill
 USCG STA Menemsha
 USCG STA Provincetown
 USCG STA Woods Hole
 USCG Waterways Management - Prevention Department
 USCG Waterways Management- Prevention Department
 USCGC Hammerhead (WPB-87302)
 USCGC Juniper (WLB-201)
 USCGC Sanibel
 USCGC Tybee (WPB-1330)
 USS Vessel Management LLC
 Viking Fleet Ferry (Montauk, NY to BI & MV)
 Vineyard Fast Ferry
 Vineyard Gazette
 Vineyard Haven Marina
 Vineyard Porthole / Dockside Marina
 Vineyard Sound Charters, Inc.
 Wampanoag Tribe of Gay Head - Cultural Resource Protection
 Wampanoag Tribe of Gay Head - Natural Resource Dept.
 Wampanoag Tribe of Gay Head (Aquinnah)
 Wampanoag Tribe of Gay Head(Aquinnah) THPO dept
 Waquoit Bay National Estuarine Research Reserve
 Wareham - Asst Harbor Master
 Wareham - Emergency Management
 Wareham - Fire Department
 Wareham - Harbor Master
 Wareham - Police Department
 Wareham Boat Yard & Marina
 Warren - Fire Department
 Warren - Harbor Master
 Warren - Police Department
 Warrior Fuel Corp. - MORGAN NO. 6
 Warwick - Fire Department
 Warwick - Harbor Master
 Warwick - Harbor Master (RI Harbormaster's Association)
 Warwick - Police Department
 Warwick Fire Dept. Marine/Dive Ops
 Watch Hill Boat Yard
 Watch Hill Yacht Club
 Wauwinet Inn, LLC
 Wellfleet - Fire Department
 Wellfleet - Harbormaster
 Wellfleet - Police Department
 Wequassett Inn
 West Dennis Yacht Club
 West Tisbury - Fire Department
 West Tisbury - Police Department
 Westerly - Civil Defense
 Westerly - Watch Hill Fire Department
 Westerly - Westerly Fire Department
 Westport - Fire Department
 Westport - Harbormaster
 Westport - Police Department
 Westport Fisherman's Association
 Wickford Cove Marina (Brewer)
 Wickford Marina
 Woods Hole Marine
 Woods Hole Oceanographic Institute
 Zecco Marina

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APPENDIX E

Criticality Work Sheet

Assign a value 1-5 to each of the following statements. A value of 1 indicates you strongly disagree with the statement, while a value of 5 indicates you strongly agree with the statement.

Physical Hazards of the waterway	Disagree				Agree
	1	2	3	4	5
The waterway is relatively shallow (depth of water close to max draft of vessels transiting the waterway).		✓			
The Waterway is relatively Narrow. (The width to beam ratio of the largest user is small.)	✓				
Submerged rock outcroppings or wrecks are prevalent.			✓		
The channel is not centered within the waterway.					✓
There are blind bends that are hard to recognize.	✓				
Currents, winds or tides create a significant force that can cause ships to be set off course.				✓	
Fog, rain or other visibility restrictors routinely cause visibility to drop below 1 mile.		✓			
The waterway is complicated to travel? (Lots of turns, dangerous shoals or rocks...)		✓			
Column Totals:	2	6	3	4	5

Total: 20

Navigational Complexity	1	2	3	4	5
GPS/DGPS coverage is unavailable or extremely unreliable	✓				
None of the traffic makes use digital charting programs for the area	✓				
The available chart scales (Paper and electronic) are <u>not</u> adequate for safe navigation.	✓				
The shoreline provides a weak radar return.	✓				
There are no landmarks that can be readily used to fix a vessels position.	✓				
Most operators transit this waterway on less then a weekly basis.			✓		
Two-way traffic is common					✓
Vessels regularly transit the waterway at night.					✓
Column Totals:	5	0	3	0	10

Total: 18

The following 2 sections are weighted due to their significant impact on the criticality rating of a waterway.

Current effectiveness of aids	5	10	15	20	25
You can rarely see multiple aids to navigation.	✓				
The vast majority of the aids are fixed structures.	✓				
Aid discrepancies have contributed to accidents.	✓				
Column Totals:	15	0	0	0	0

Total: 15

Consequences of an incident	5	10	15	20	25
Large Quantities of Hazardous Cargoes are transported on this waterway			✓		
There is at least one Environmentally Sensitive area within this waterway near where the hazardous Cargoes are transported				✓	
A maritime accident within this waterway would have significant economic impact.				✓	
Column Totals:	0	0	15	40	0

Total: 55

GRAND TOTAL: 108

This Waterway is Environmentally Critical

*Note a Grand Total of 114 will qualify the waterway as Navigationally Critical, and a total of 35 between the first two factors in the Consequences of an Incident Section will qualify for Environmentally Critical.

APPENDIX F

NMFS Vessel Monitoring System VMS Data

Nantucket Sound VMS Traffic per Calendar Year

August 23, 2016

This report summarizes traffic by VMS-equipped vessels in and through Nantucket Sound in recent years. The information requested by the First CG District Waterways Management Division was for counts of VMS vessel transits per year from calendar year 2005 through 2015. Data was only available from 2010, so this report only covers those years, 2010 through 2015.

The area of interest was identified by coordinates as a generalized polygon covering the Nantucket Sound region, including harbors. Since the summary request asked that vessels within harbor areas be excluded it was necessary to reduce the generalized area to a smaller area that did not include the harbors. This was done by using a geometry file known as the NOAA Medium Resolution Shoreline (MRS) [<http://shoreline.noaa.gov/data/datasheets/medres.html>]. Computer programming was used to expand the MRS land areas by 0.5 statute miles, and then all areas of the expanded MRS were removed from the generalized area where overlap occurred. In this document the reduced area is called 'Nantucket Sound Interior'.

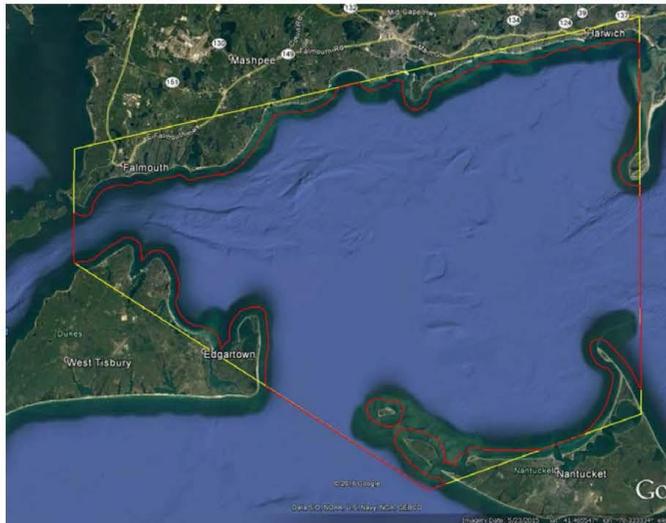


Figure 1. Yellow indicates the generalized Nantucket Sound area built from coordinates provided by Craig Lapiejko, CG D1 (dpw). Red indicates the reduced Nantucket Sound Interior area that was constructed to exclude harbor areas within the larger generalized area.

Figure 1 is a screen clip to show a close-up from Google Earth so that it can be seen how the Nantucket Sound Interior area excludes harbor areas from within the generalized area.

The goal of this report then became to summarize the number of VMS-equipped vessel transits of the Nantucket Sound Interior for each of the calendar years available. A transit consists of a vessel entering into the Nantucket Sound Interior and then passing out of the area again. That can include many scenarios, such as vessels entering the area from a distant port and then leaving the area again, or

entering the area from a nearby port and then returning to that port or another port nearby, and several additional possibilities. In all cases a transit includes an area entry, and so for this analysis it wasn't necessary to examine the area exists. The number of transits was identified simply by counting only each entry into the Nantucket Sound Interior.

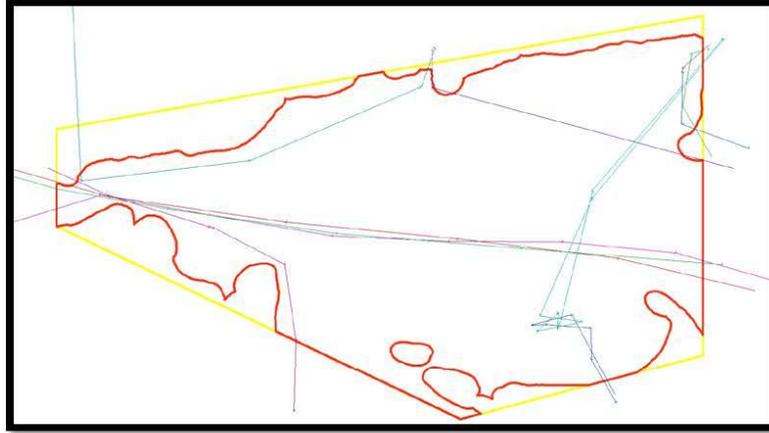


Figure 2. Examples of transits of the Nantucket Sound Interior.

Figure 2 shows several examples of transits of the Nantucket Sound Interior. All shoreline has been omitted for clarity. It can be seen that some transits pass through Nantucket Sound without engaging in fishing, while other transits consist of entering Nantucket Sound for the express purpose of fishing within the sound.

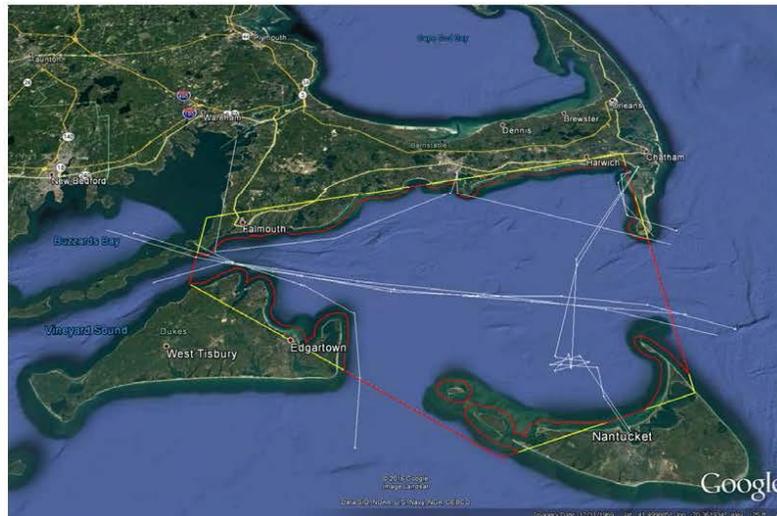


Figure 3. The example transits shown using Google Earth.

Figure 3 shows the same example transits as in Figure 2, but with a Google Earth background to better identify which transits included stops within harbor areas.

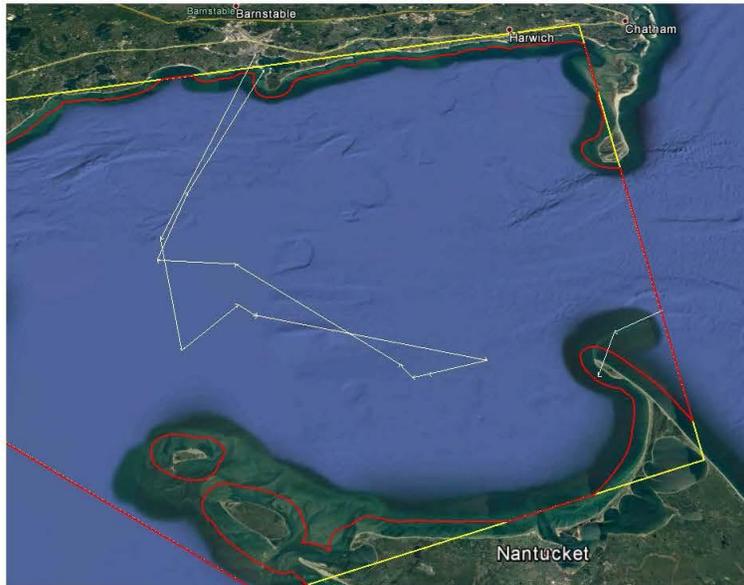


Figure 4. A short transit and a longer transit.

For the purpose of this summary all transits were given equal weight. A transit when the vessel spent a long time within Nantucket Sound counted no more than a very brief transit did. Figure 4 gives an illustration. The short transit in the lower right took only 0.62 hours while the longer transit from the top of the image took 13 hours. Both count as only one transit each.

The Results.

Table 1 below gives the counts of VMS vessel transits of the Nantucket Sound Interior area by calendar year from 2010 through 2015. Also given are counts of unique VMS vessels (by federal documentation number or state registration number) that produced these transits. In 2010, for example, 332 different VMS vessels together made 7177 transits of the Nantucket Sound Interior.

YEAR	TRANSITS	VESSELS
2010	7177	332
2011	7620	392
2012	9183	405
2013	9088	431
2014	7762	374
2015	7079	387

Table 1. Counts of Transits and Vessels by Year

Issues.

The scheme of identifying transits has some flaws in cases where vessels failed to report positions within Nantucket Sound at expected intervals. For example, a vessel that takes several hours to transit the sound would not be detected at all if it failed to report at least one position while inside the sound during that time. Further, to limit programming overhead it was decided to look backward only four hours from each position inside Nantucket Sound Interior in order to determine if an area entry occurred. In some few cases it has been identified that a vessel reported a position inside the Sound but no position within four hours prior to that, in which case a transit was not counted.

In addition, near the edges of Nantucket Sound Interior it is possible for VMS vessels to pass through the area quickly without reporting any positions. Detailed study of the data identified some instances of vessels reporting from port and then next reporting at sea without any position being reported within the sound; and likewise on return trips. Those transits are not countable under the scheme used.

It is possible to construct programming to address the issues with the current transit identification scheme, but the programming effort and processing time would make the task considerably longer.

- Report provided by the Northeast VMS Team, NMFS Office of Law Enforcement

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APPENDIX G

Vessel Traffic Data – USCG AIS Data, MEP Recreational Vessel Registration Data and USACE Waterborne Statistics

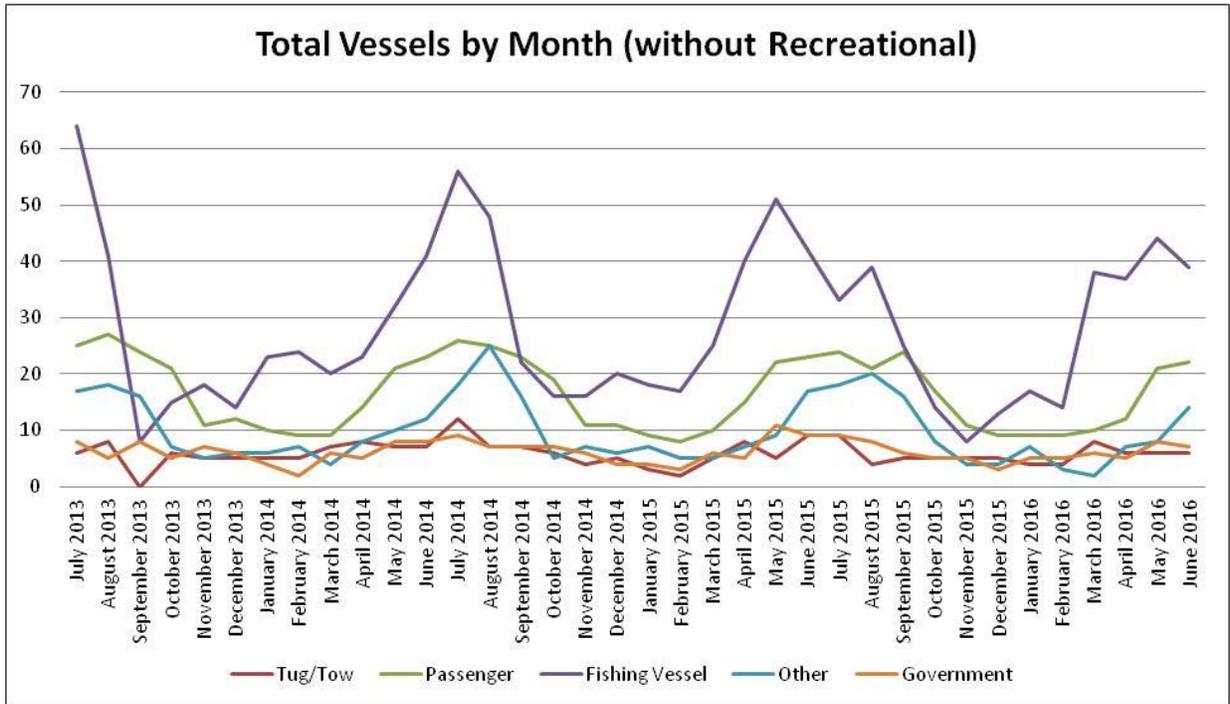


Figure 1: Total AIS-equipped Vessels by Month (without Recreational Vessels) Transiting Nantucket Sound
 Source: U.S. Coast Guard Navigation Center AIS Data

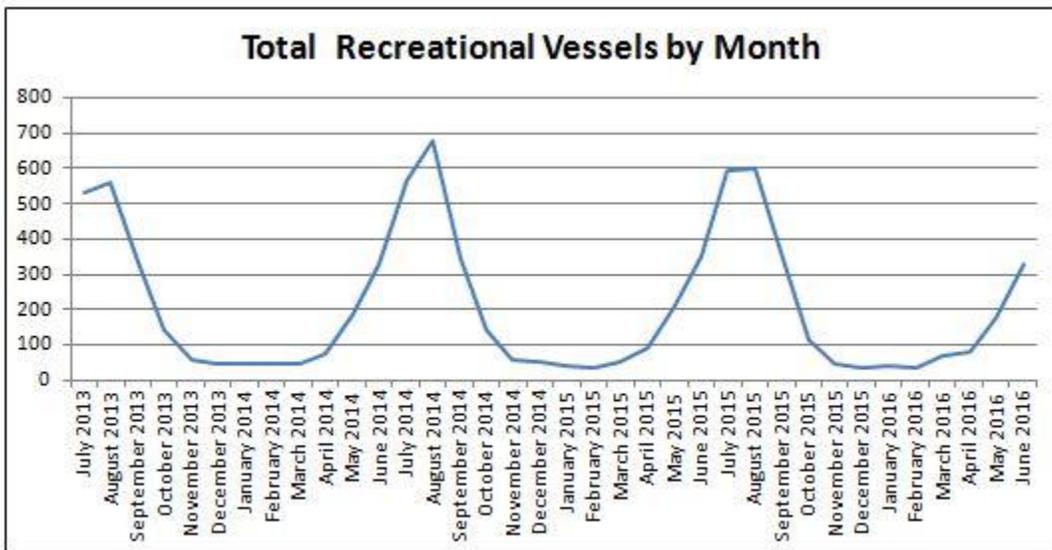
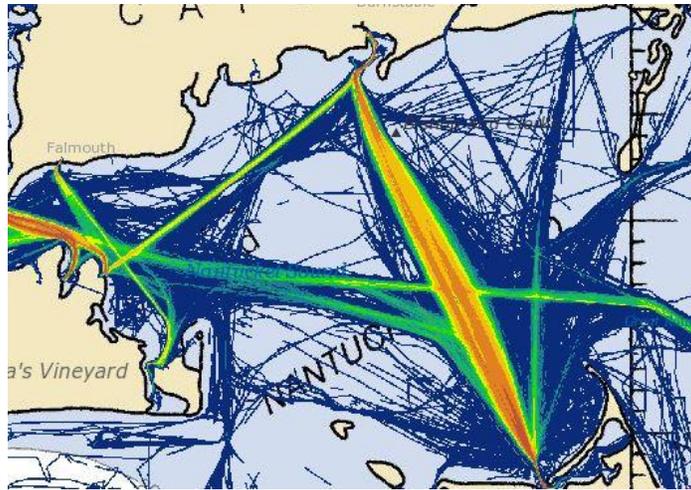


Figure 2: Total AIS-equipped Recreational Vessels by Month) Transiting Nantucket Sound
 Source: U.S. Coast Guard Navigation Center AIS Data

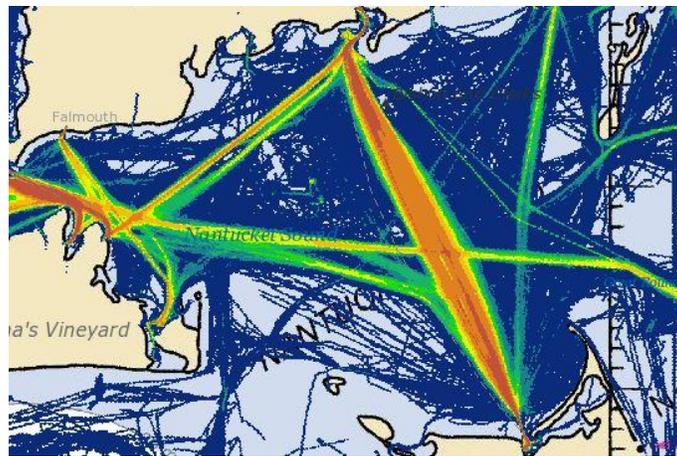
	Recreation	Tug/Tow	Passenger	Fishing Vessel	Other	Government
July 2013	414	6	25	64	17	8
August 2013	462	8	27	41	18	5
September 2013	277	0	24	8	16	8
October 2013	87	6	21	15	7	5
November 2013	12	5	11	18	5	7
December 2013	1	5	12	14	6	6
January 2014	0	5	10	23	6	4
February 2014	1	5	9	24	7	2
March 2014	2	7	9	20	4	6
April 2014	18	8	14	23	8	5
May 2014	109	7	21	32	10	8
June 2014	236	7	23	41	12	8
July 2014	447	12	26	56	18	9
August 2014	569	7	25	48	25	7
September 2014	273	7	23	22	16	7
October 2014	88	6	19	16	5	7
November 2014	12	4	11	16	7	6
December 2014	5	5	11	20	6	4
January 2015	0	3	9	18	7	4
February 2015	0	2	8	17	5	3
March 2015	1	5	10	25	5	6
April 2015	16	8	15	40	7	5
May 2015	109	5	22	51	9	11
June 2015	251	9	23	42	17	9
July 2015	499	9	24	33	18	9
August 2015	508	4	21	39	20	8
September 2015	284	5	24	25	16	6
October 2015	65	5	17	14	8	5
November 2015	14	5	11	8	4	5
December 2015	3	5	9	13	4	3
January 2016	1	4	9	17	7	5
February 2016	0	4	9	14	3	5
March 2016	4	8	10	38	2	6
April 2016	15	6	12	37	7	5
May 2016	88	6	21	44	8	8
June 2016	241	6	22	39	14	7
Total	5112	209	597	1015	354	222

Table 1: Total Individual Vessels by Month and Type

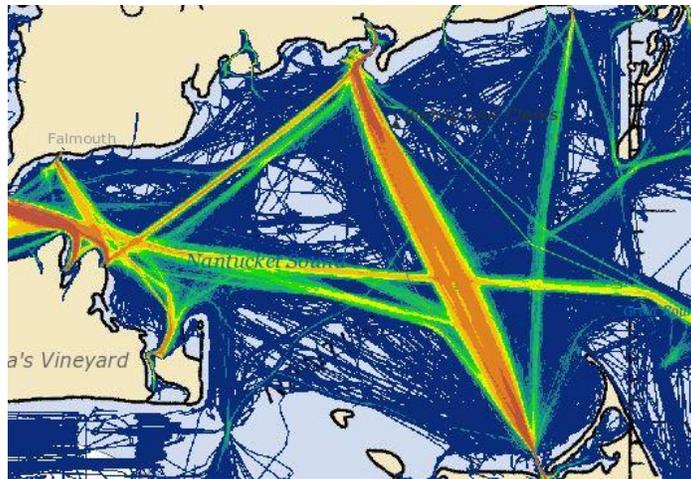
Source: U.S. Coast Guard Navigation Center AIS Data



2011



2012



2013

Figure 3: Annual AIS All Vessel Density
Source: U.S. Coast Guard Navigation Center AIS Data

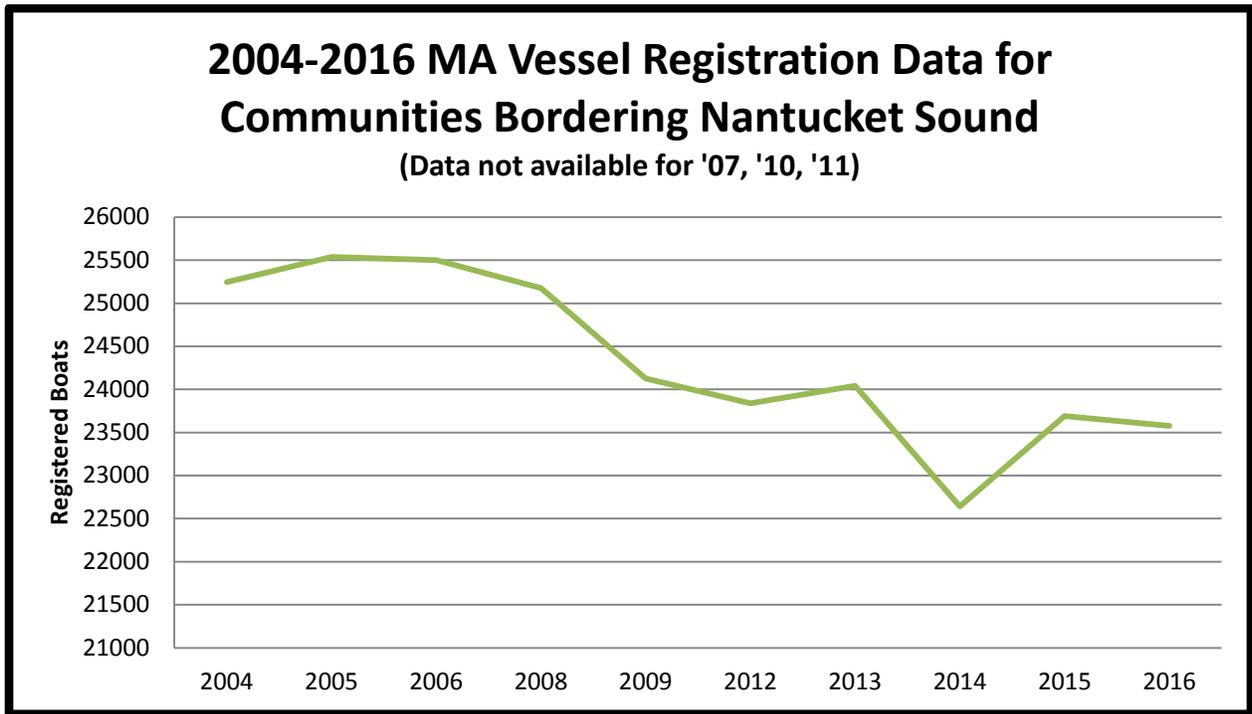


Figure 4: MA Recreational Vessel Registration Data from 2004 – 2016

Data Source: Massachusetts Environmental Police, Special Operations Bureau

CITY/TOWN	2004	2005	2006	2008	2009	2012	2013	2014	2015	2016
BARNSTABLE	4852	4859	4821	4782	4546	4527	4578	4317	4396	4367
CHATHAM	2709	2773	2687	2681	2585	2556	2601	2430	2533	2501
CHILMARK	246	246	252	254	253	230	235	224	237	237
DENNIS	1781	1805	1843	1760	1719	1710	1701	1626	1703	1678
EDGARTOWN	922	926	933	945	874	835	877	808	870	872
FALMOUTH	4600	4689	4670	4537	4380	4325	4341	4080	4255	4236
GAY HEAD	51	56	50	55	55	56	58	56	61	61
GOSNOLD	120	116	132	138	122	101	109	102	108	102
HARWICH	1190	1215	1223	1265	1159	1132	1141	1092	1171	1201
MASHPEE	1727	1750	1766	1737	1750	1759	1814	1787	1835	1880
NANTUCKET	1976	2029	2070	2016	1953	1900	1937	1811	1982	1931
OAK BLUFFS	350	354	361	374	340	362	364	330	331	343
ORLEANS	1621	1594	1558	1545	1427	1396	1393	1322	1358	1326
TISBURY	649	664	690	660	630	636	642	536	616	632
WELLFLEET	632	648	627	619	592	595	558	494	531	535
WEST TISBURY	105	104	109	111	122	125	124	122	121	123
YARMOUTH	1716	1708	1709	1698	1618	1592	1570	1505	1582	1551
Total:	25247	25536	25501	25177	24125	23837	24043	22642	23690	23576

Table 2: MA Recreational Vessel Registration Data from 2004 – 2016

Data Source: Massachusetts Environmental Police, Special Operations Bureau

Port:	Falmouth	Nantucket	Vineyard Haven
Year			
2006	9,200	64,110	78,164
2007	7,200	38,228	68,548
2008	0	24,325	66,773
2009	47,188	9,953	70,520
2010	48,395	8,654	102,252
2011	5,200	8,931	106,504
2012	4,950	6,565	51,063
2013	1,000	8,166	60,726
2014	1850	11,222	55,676

Note: Largest commodity category was petroleum products
Table 3: Annual Cargo tonnage (short tons) from 2006 – 2014
Source: U.S. Army Corps of Engineers Waterborne Commerce Statistics

Port:	Falmouth	Hyannis	Nantucket	Vineyard Haven	Totals
Year					
2006	6,294	31,019	21,331	24,643	83,287
2007	6,588	12,737	10,770	15,670	45,765
2008	1,430	14,988	13,674	18,446	48,538
2009	3,860	4,287	4,342	9,851	22,340
2010	6,434	12,346	11,322	13,484	43,586
2011	6,040	9,024	8,736	12,607	36,407
2012	4,908	6,650	6,675	13,339	31,572
2013	3,608	6,844	6,895	13,708	31,055
2014	3,834	6,838	6,954	13,849	31,475

Table 4: Number of commercial vessel transits to/from ports within Nantucket Sound
(all types, except ferries)

Source: U.S. Army Corps of Engineers Waterborne Commerce Statistics

ENCLOSURE 1

H. R. 4188 2015
CG Authorization
Act Section 310(b)

114TH CONGRESS
1ST SESSION

H. R. 4188

AN ACT

To authorize appropriations for the Coast Guard for fiscal years 2016 and 2017, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Coast Guard Author-
3 ization Act of 2015”.

4 **SEC. 2. TABLE OF CONTENTS.**

5 The table of contents for this Act is as follows:

- Sec. 1. Short title.
- Sec. 2. Table of contents.

TITLE I—AUTHORIZATIONS

- Sec. 101. Authorizations.
- Sec. 102. Conforming amendments.

TITLE II—COAST GUARD

- Sec. 201. Vice Commandant.
- Sec. 202. Vice admirals.
- Sec. 203. Coast Guard remission of indebtedness.
- Sec. 204. Acquisition reform.
- Sec. 205. Auxiliary jurisdiction.
- Sec. 206. Coast Guard communities.
- Sec. 207. Polar icebreakers.
- Sec. 208. Air facility closures.
- Sec. 209. Technical corrections to title 14, United States Code.
- Sec. 210. Discontinuance of an aid to navigation.
- Sec. 211. Mission performance measures.
- Sec. 212. Communications.
- Sec. 213. Coast Guard graduate maritime operations education.
- Sec. 214. Professional development.
- Sec. 215. Senior enlisted member continuation boards.
- Sec. 216. Coast Guard member pay.
- Sec. 217. Transfer of funds necessary to provide medical care.
- Sec. 218. Participation of the Coast Guard Academy in Federal, State, or other educational research grants.
- Sec. 219. National Coast Guard Museum.
- Sec. 220. Investigations.
- Sec. 221. Clarification of eligibility of members of the Coast Guard for combat-related special compensation.
- Sec. 222. Leave policies for the Coast Guard.

TITLE III—SHIPPING AND NAVIGATION

- Sec. 301. Survival craft.
- Sec. 302. Vessel replacement.
- Sec. 303. Model years for recreational vessels.
- Sec. 304. Merchant mariner credential expiration harmonization.
- Sec. 305. Safety zones for permitted marine events.
- Sec. 306. Technical corrections.
- Sec. 307. Recommendations for improvements of marine casualty reporting.
- Sec. 308. Recreational vessel engine weights.
- Sec. 309. Merchant mariner medical certification reform.

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- Sec. 310. Atlantic Coast port access route study.
- Sec. 311. Certificates of documentation for recreational vessels.
- Sec. 312. Program guidelines.
- Sec. 313. Repeals.
- Sec. 314. Maritime drug law enforcement.
- Sec. 315. Examinations for merchant mariner credentials.
- Sec. 316. Higher volume port area regulatory definition change.
- Sec. 317. Recognition of port security assessments conducted by other entities.
- Sec. 318. Fishing vessel and fish tender vessel certification.
- Sec. 319. Interagency Coordinating Committee on Oil Pollution Research.
- Sec. 320. International port and facility inspection coordination.

TITLE IV—FEDERAL MARITIME COMMISSION

- Sec. 401. Authorization of appropriations.
- Sec. 402. Duties of the Chairman.
- Sec. 403. Prohibition on awards.

TITLE V—CONVEYANCES

Subtitle A—Miscellaneous Conveyances

- Sec. 501. Conveyance of Coast Guard property in Point Reyes Station, California.
- Sec. 502. Conveyance of Coast Guard property in Tok, Alaska.

Subtitle B—Pribilof Islands

- Sec. 521. Short title.
- Sec. 522. Transfer and disposition of property.
- Sec. 523. Notice of certification.
- Sec. 524. Redundant capability.

Subtitle C—Conveyance of Coast Guard Property at Point Spencer, Alaska

- Sec. 531. Findings.
- Sec. 532. Definitions.
- Sec. 533. Authority to convey land in Point Spencer.
- Sec. 534. Environmental compliance, liability, and monitoring.
- Sec. 535. Easements and access.
- Sec. 536. Relationship to Public Land Order 2650.
- Sec. 537. Archeological and cultural resources.
- Sec. 538. Maps and legal descriptions.
- Sec. 539. Chargeability for land conveyed.
- Sec. 540. Redundant capability.
- Sec. 541. Port Coordination Council for Point Spencer.

TITLE VI—MISCELLANEOUS

- Sec. 601. Modification of reports.
- Sec. 602. Safe vessel operation in the Great Lakes.
- Sec. 603. Use of vessel sale proceeds.
- Sec. 604. National Academy of Sciences cost assessment.
- Sec. 605. Penalty wages.
- Sec. 606. Recourse for noncitizens.
- Sec. 607. Coastwise endorsements.
- Sec. 608. International Ice Patrol.

•HR 4188 EH

1 “(2) a trusted agent to defer to the Secretary
2 the issuance of a medical certificate.

3 “(c) TRUSTED AGENT DEFINED.—In this section the
4 term ‘trusted agent’ means a medical practitioner certified
5 by the Secretary to perform physical examinations of an
6 individual for purposes of a license, certificate of registry,
7 or merchant mariner’s document under this part.”.

8 (b) DEADLINE.—Not later than 5 years after the
9 date of the enactment of this Act, the Secretary of the
10 department in which the Coast Guard is operating shall
11 issue a final rule implementing section 7509 of title 46,
12 United States Code, as added by this section.

13 (c) CLERICAL AMENDMENT.—The analysis for such
14 chapter is amended by adding at the end the following:
 “7509. Medical certification by trusted agents.”.

15 **SEC. 310. ATLANTIC COAST PORT ACCESS ROUTE STUDY.**

16 (a) ATLANTIC COAST PORT ACCESS ROUTE
17 STUDY.—Not later than April 1, 2016, the Commandant
18 of the Coast Guard shall conclude the Atlantic Coast Port
19 Access Route Study and submit the results of such study
20 to the Committee on Transportation and Infrastructure
21 of the House of Representatives and the Committee on
22 Commerce, Science, and Transportation of the Senate.

23 (b) NANTUCKET SOUND.—Not later than December
24 1, 2016, the Commandant of the Coast Guard shall com-
25 plete and submit to the Committee on Transportation and

•HR 4188 EH

1 Infrastructure of the House of Representatives and the
2 Committee on Commerce, Science, and Transportation of
3 the Senate a port access route study of Nantucket Sound
4 using the standards and methodology of the Atlantic Coast
5 Port Access Route Study, to determine whether the Coast
6 Guard should revise existing regulations to improve navi-
7 gation safety in Nantucket Sound due to factors such as
8 increased vessel traffic, changing vessel traffic patterns,
9 weather conditions, or navigational difficulty in the vicin-
10 ity.

11 **SEC. 311. CERTIFICATES OF DOCUMENTATION FOR REC-**
12 **REATIONAL VESSELS.**

13 Not later than 1 year after the date of the enactment
14 of this Act, the Secretary of the department in which the
15 Coast Guard is operating shall issue regulations that—

16 (1) make certificates of documentation for rec-
17 reational vessels effective for 5 years; and

18 (2) require the owner of such a vessel—

19 (A) to notify the Coast Guard of each
20 change in the information on which the
21 issuance of the certificate of documentation is
22 based, that occurs before the expiration of the
23 certificate; and

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ENCLOSURE 2

Marine Planning Guidelines

Marine Planning Guidelines - Recommended Navigational Safe Distances

Purpose: These guidelines are provided to assist offshore developers and marine planners with their evaluation of the navigational impacts of any projects with multiple permanent fixed structures. The coastal areas include multiple users such as commercial shipping, tug and barge operations, commercial and recreational fishing, research vessels, offshore support vessels and aquaculture apparatus. The guidelines consider sea space necessary for ships to maneuver safely, and discuss other factors to be considered when determining appropriate separation distances for the siting of offshore structures near shipping routes and other multiple use areas.

These guidelines are not regulatory. They do not impact the boundaries of any existing leases for site characterization and site assessment activities, but do inform suitability of siting structures within a lease area. These guidelines should be considered during the area identification phase for both unsolicited and solicited development areas and when determining the siting of structures within existing areas. These guidelines also serve as one of the references to inform the Navigation Safety Risk Assessments (NSRA) conducted by developers.

Background: More than 90% of the world's trade is carried by water, making a safe and efficient marine transportation system critical to the Nation's economy. The shipping industry is dynamic as vessel size grows and newer designs meet the ever-changing maritime industry's ambitions. Understanding these changes and the future needs of the maritime transportation system are critical to marine planning efforts. Information such as that identified by a 2012 U. S. Army Corps of Engineers (USACE) study which estimated that the number and size (capacity) of container vessels calling on East Coast ports will double by 2030 is just one example of changing conditions that must be considered.¹ Marine planning has become increasingly important, and more complex with the size and density of vessels increasing and emerging uses of the waterways competing for space.

The United Nations Convention on the Law of the Sea (UNCLOS), Article 60, Paragraph 8 states "Artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation." A similar provision is found in U.S. Law – The Outer Continental Shelf Lands Act (OCSLA) as amended by the Energy Policy Act of 2005 (EPAAct), provides that the Secretary of the Interior shall ensure that any leases, easements or rights-of-way are carried out in a manner that prevents interference with reasonable uses of the exclusive economic zone, the high seas and the territorial seas; and in consideration of any other use of the sea or seabed, including use for a fishery, sealane, a potential site for a deepwater port, or navigation.²

¹ U.S. Army Engineer Institute for Water Resources (IWR) report, *U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels*, June 20, 2012.

² Energy Policy Act, Section 388- Alternative Energy-Related Uses on the Outer Continental Shelf

Both UNCLOS and the International Maritime Organization- General Provisions on Ships' Routing (GPSR) express intent for the ability of vessels to fully comply at all times with the International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREGS). The GPSR is the IMO standard used when considering vessel maneuvering risk assessment. Impacting the ability of a vessel to fully comply with COLREGS constitutes "interference" in accordance with UNCLOS and the Energy Policy Act of 2005.

The Department of Interior's (DOI) Smart from the Start initiative³ for promoting large scale, offshore renewable energy development, raised significant concerns from the U.S. and international shipping communities regarding the harmful impacts to navigation posed by large arrays of offshore structures. The Bureau of Ocean Energy Management (BOEM) created Renewable Energy State Task Forces to help BOEM identify priority areas for development, known as Wind Energy Areas or WEAs. While participating in this process, the Coast Guard has been repeatedly asked what the minimum required buffer or separation distance was for wind farms from shipping routes. As a Cooperating Agency, the Coast Guard was also asked to evaluate proposed areas for development.

To accomplish this task, the Coast Guard leveraged the United Kingdom (UK) Maritime Guidance Note MGN-371⁴ to develop a RED-YELLOW-GREEN (R-Y-G) methodology to classify lease blocks as an initial recommendation concerning the potential impact to safe navigation, with the understanding that recommendations would be updated as additional information and analyses became available. The R-Y-G methodology assigned Red, Yellow or Green colors to chart aliquots⁵ of the proposed WEA by applying risk-distance concepts from MGN 371. However, the methodology did not adopt the UK guideline of 5 NM as the minimum distance to the entry/exit of a traffic separation scheme (TSS), primarily due to the concern that the requirement would have eliminated the majority of proposed wind energy areas already announced as part of the Smart from the Start initiative.

Red aliquots were areas of high conflict and were not recommended to be considered for development. Yellow aliquots were areas that were moderate to high conflict which would require further study and analysis. Green aliquots were areas of lower conflict and considered as likely acceptable for development based on available information. On a case by case basis some areas of high conflict were classified as Yellow in order to allow further study if alternative routing and potential mitigations were being explored. The intent was to leave as much area available for further study and analysis to determine if risk could be lowered to within acceptable levels. Both Yellow and Green areas

³ <http://www.doi.gov/news/pressreleases/upload/02-07-10-wea-fact-sheet.pdf>

⁴ United Kingdom Maritime and Coastguard Agency (MCA) Marine Guidance Note MGN-371, Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues.

⁵ Aliquots are generated from full OCS blocks by sub-dividing each block into 16ths and allow for more detailed boundary delineation in offshore energy leasing. The aliquots use a letter designation in addition to their parent protraction number and OCS block number (ie. NK-1802, 6822F). A full OCS block is 4800 x 4800 meters, while an aliquot measures 1200 x 1200 meters.

remained as part of a WEA in BOEM's notices to developers moving through the leasing process

The R-Y-G methodology resulted in de facto standard distances and left some with the incorrect assumption that the resultant WEAs had addressed all significant conflicts with navigation. However, the majority of blocks were classified as Yellow and conflicts still remained that required analysis to determine if risk could be lowered to within acceptable levels, before being considered suitable for development. Additionally, for certain areas, there was strong resistance to further reduce areas as additional information became available, resulting in areas being leased with significant conflicts remaining.

To address these concerns, more comprehensive guidelines similar to those promulgated by European countries were deemed necessary. The goal of these guidelines is to minimize interference with shipping routes such that the safety of navigation is not compromised, while providing the flexibility to evaluate site specific conditions to maximize area considered for development. In situations where achieving a low risk is not possible, the goal would be to mitigate risk to as "*Low as Reasonably Practicable*"⁶. The remaining level of risk would need to be weighed against other factors by the Lead Permitting Agency to determine whether the project should proceed or not.

Discussion: There is no international standard that specifies minimum distances between shipping routes and fixed structures; however, it is widely accepted internationally that fixed structures in the offshore environment should not interfere with navigation. In developing guidelines for the U.S., criteria established by international shipping organizations and standards published by other nations were considered. Some of these are summarized below.

The Confederation of European Shipmasters' Associations (CESMA) has endorsed a document provided by the Shipping Advisory Board Northsea. The document recommends a minimum distance of 0.3 NM + 6 ship lengths + 500 m to the Starboard side of a route and 6 ship lengths + 500 m to Port. Most self-propelled ships, by propeller design, tend to make tighter turns to port than to starboard. These recommendations are based on the minimum space needed by normal deep sea self-propelled ships to comply with the collision regulations.⁷ This would equate to a distance of 1.9 NM to Starboard of a route with 400m vessels.

The World Shipping Council (WSC), which represents over twenty-eight liner shipping companies that carry approximately 90% of U.S. international containerized trade, has recommended a minimum buffer distance of 2 NM. They also recommend the buffers be increased in areas where vessels travel at higher speeds than in port approaches.⁸

⁶ MGN-371

⁷ The distance is based on local conditions and may vary for other locations. Most self-propelled ships, by propeller design, tend to make tighter turns to port than to starboard. <http://www.cesma-eu.org/MSP.pdf>

⁸ World Shipping Council Comments on USCG ACPARS, August 2011. <http://www.worldshipping.org/public-statements/regulatory-comments/unitedstates>

The WSC also submitted additional information from vessel masters, providing the distances they believe are required for maneuvers that may occur when a vessel encounters an emergency or a collision avoidance maneuver while operating in a maritime traffic route (all values are approximate):

- Crash Stop (backing the vessel from full speed): ~ 1.75 - 2.4 nm
- Complete Stop (letting the vessel stop on its own from full speed): ~3 to 3.5 nm
- Emergency Anchoring: ~1.5 to 1.75 nm
- Width (i.e. tactical diameter) of a 180° turn (starting at full speed): ~0.9 nm

The United Kingdom (UK) combined radar results from the North Hoyle electromagnetic trials with published ship domain theory to determine the inter-relationship of marine wind farms and shipping routes.⁹ The template developed was then offered to maritime stakeholders and wind developers for comment. The resulting guidelines are contained in the Maritime Guidance Note MGN-371.

Some of the key distances from the MGN-371 shipping route template include:

- 1NM is the minimum distance to the parallel boundary of a TSS (HIGH/MEDIUM risk).
- 2NM is the distance where COLREGS become less challenging. (MEDIUM risk)
- >2NM risk becomes LOW, except near a TSS where risk would be higher. (MGN-371 does not state a distance where risk becomes LOW near a TSS.)
- 5NM is the minimum distance from the entry/exit of a TSS. (Assumed to be MEDIUM risk)

The German Waterways and Shipping Directorate North West and North guidelines recommend a separation distance of at least 2 NM plus a 500 m safety zone between shipping lanes and wind generators.¹⁰ In actual practice the German Spatial Plans for the North Sea and Baltic Sea have identified priority areas where structures cannot be built and also reservation areas as a supplemental measure in which the needs of shipping are given special consideration. In many cases the priority areas have fully addressed minimum requirements and the reservation areas are additional separation areas far exceeding the minimum requirements. Some reasons listed for the additional separation areas included hazardous cargo transits or heavily trafficked areas.

⁹ United Kingdom Maritime Guidance Note MGN-371 - Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues, 2008.

¹⁰ Guidelines for the Design, Marking and Operation of Wind Generators in the Area of Responsibility of the Federal Waterways and Shipping Directorates North-West and North to Guarantee the Safety and Efficiency of Vessel Traffic. http://www.wsd-nordwest.de/schifffahrt/Windparks_auf_hoher_See/PDF/Guidelines_for_the_Design_Marking_and_Operation_of_Wind_Generators_in_the_Area_of_Responsibility_of_the_Waterways.pdf

Planning Guidelines- The enclosure provides the general guidelines for the siting of multiple structures near shipping routes and established ships routing measures. The guidelines would typically result in a medium level of risk as they are based on minimum distances for the largest vessels to maneuver safely. Additional mitigation measures should be considered to achieve a low level of navigational safety risk. As a cooperating agency in the NEPA process, the Coast Guard will request, through the Lead Federal Agency, that the developer complete a Navigation Safety Risk Assessment (NSRA) to evaluate potential impacts to navigational safety.

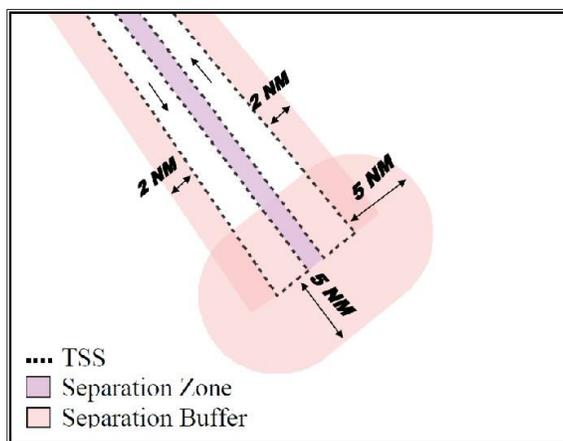
Recommended Guidelines for General Assessment of Areas for Potential Development

1. Port Approaches and Traffic Separation Schemes:

Planning Guidelines

- 2NM from the parallel outer or seaward boundary of a traffic lane. (Assumes 300-400m vessels)
- 5NM from the entry/exit (terminations) of a TSS

These recommendations are based on generic deep draft vessel maneuvering characteristics and are consistent with existing European guidelines. They account for the minimum distances for larger vessels to maneuver in emergency situations.



The 5 NM mile separation from the entry and exit of a TSS is necessary to enable vessels to detect one another visually and by radar in areas where vessels are converging and diverging from and to multiple directions.

2. Coastwise or Coastal Shipping Routes:

Vessels that tend to follow the coastline are typically smaller vessels and vessels that cannot safely transit too far offshore due to sea state limitations. The necessary sea space for vessels to safely maneuver is determined by the size and maneuverability of vessels, and density of vessel traffic. When determining routes near shore the depth of water and location of underwater obstructions must be considered, especially if vessel routes will be displaced by the introduction of fixed structures. Vessels of particular concern are towing vessels towing astern on a wire. In this configuration their footprint is large,

maneuvering ability is constrained, and the catenary of the tow wire will dictate significantly larger water depths than the drafts of the tug or barge.

Planning Guidelines-

- Identify a navigation safety corridor to ensure adequate sea area for vessels to transit safely.
- Provide inshore corridors for coastal ships and tug/barge operations.
- Minimize displacement of routes further offshore.
- Avoid displacing vessels where it will result in mixing vessel types.
- Identify and consider cumulative and cascading impacts of multiple offshore renewable energy installations (OREIs), such as wind farms.

3. Offshore Deep Draft Routes:

Offshore deep draft routes can be more flexible in terms of the location of the routes. It is still necessary to have adequate sea area for safe navigation, but less critical to preserve existing routes to achieve safe conditions.

Planning Guidelines-

- Avoid creating an obstruction or hazard on both sides of an existing route.
- If not practicable to avoid structures or hazards on both sides of a route, a navigation safety corridor should be of sufficient size to provide for the safe transit of the largest vessels. Large ocean-going ships often operate at high speeds that effect maneuvering response time. This should be accounted for when making the determination.

4. Navigation safety corridors: Navigation safety corridors identify the amount of area necessary for vessels to safely transit along a route under all situations. These corridors are not considered routing measure by the Coast Guard or the IMO, but are only in this report to delineate areas where no offshore development should be considered. These corridors should not be confused with fairways, two-way routes or Traffic Separation Schemes which are routing measures that identify specific inshore traffic areas. Heat maps (density plots) of Automatic Identification System (AIS) information are useful in determining the location of a route, but are less useful in determining the appropriate size of a route where multiple vessels may be required to pass one another safely. Navigation safety corridors should be given priority consideration over other potential uses of the same water space.

In determining the appropriate size of navigation safety corridors, the following factors must be considered for the largest and least maneuverable vessels expected to use a route.

- Cross Track Error - indicates the difference between the vessel's intended and actual track.
- Closest Point of Approach - the safe distance at which a vessel can pass a fixed or moving hazard accounting for existing conditions.

- Density of vessel traffic - indicates the number of vessels that can be expected to meet, overtake or cross in the same general area.

The factors to be considered are interrelated and should be considered in the context of the maximum most probable weather and sea state conditions. The types of operations requiring the most sea space for maneuvering under normal and emergency situations should be used as the reference point.

Cross Track Error. Cross track error (CTE) is the difference between the intended and actual track. Factors leading to a vessel deviating from intended track include:

- Environmental Forces - include wind, currents and sea state.
 - Wind forces can set a vessel in the downwind direction. The impacts of the wind will vary according to the size and shape of the vessel.
 - Currents, particularly cross currents, can significantly affect the maneuverability of a vessel and space required to navigate safely.
 - Sea state, including size and direction of waves, can cause vessels to pitch, heave and roll. Yawing motions could result in the vessel drifting off course. Following seas can impact the ability of the vessel to steer a steady course.
- Swept Path - (the sum of various factors to determine the total width of the tug and barge path) will depend on the abilities of the vessel operator and the maneuvering characteristics of the vessel and are a secondary cause of cross track error.
 - Vessel Operator Response - consists of the vessel operator's ability to recognize a deviation from an intended track and the time to take corrective action.
 - Vessel's Response - the speed at which the vessel responds to rudder and main engines.

Closest Point of Approach (CPA). In complying with the COLREGS, the Captain of a vessel is required to consider all dangers of navigation and collision and any special circumstances, including limitations of the vessels involved, which may make a departure from the COLREGS necessary to avoid immediate danger.¹¹ When determining an appropriate CPA, all factors of weather, maneuvering capability, visibility, etc. must be considered, as well as potential emergency situations. Under ideal conditions with low sea states, good visibility and good communications between vessels to arrange a passing agreement, a CPA of ½ to 1 NM may be acceptable. Under less ideal weather and sea conditions and/or higher vessels speeds, a CPA of 2 NM or more may be necessary to ensure safe passage. By increasing the planned CPA, the chance of a collision or allision will be decreased.

¹¹ COLREGS - International Regulations for Preventing Collisions at Sea - International Regulations for Preventing Collisions at Sea, 1972 - Rule 2 Responsibility.

Density of Traffic. The amount of traffic along a route will dictate the likelihood of vessels sharing sea space in meeting, overtaking or crossing situations. With good communications and early actions, vessels can make arrangements to limit the number of vessels interacting with each other. However, there will be times when multiple vessels converge on the same location, such as in a cluster of OREIs, and additional sea space is necessary to maneuver safely and maintain appropriate CPAs for all vessels. The longer the route is constrained, the more likely multiple vessels will meet along a route. Crossing traffic such as fishing vessels or offshore support vessels transiting to/from offshore installations will further complicate vessel interactions. A navigation safety corridor should be designed to accommodate an appropriate number of vessels passing abeam of one another and other vessel operations in the area. In low density situations such as offshore, a minimum of two vessels may be appropriate. For moderate vessel density situations a minimum of three vessels should be used for planning purposes.

5. Other site specific considerations:

Potential contributions to risk

- **High density traffic areas with converging or crossing routes.** Similar to port entrances, areas where vessels are approaching from different directions into a smaller area will produce complex vessel interactions and increase navigational safety risk. This could occur in natural choke points or off shore of a cape, peninsula or other obstruction that vessels must go around.
- **Obstructions/hazards on opposite side of a route.** If hazards or obstructions are present on the opposite side of a route from a development area, the impact will be the constriction of vessel traffic and elimination of collision assessment time and avoiding action of vessels in an emergency situation.
- **Severe weather/sea state conditions.** Predominant severe weather and sea state conditions can impact visibility, maneuverability and navigation, all of which would negatively impact navigational safety.
- **Severe currents.** Severe currents will impact maneuverability of a vessel and ability to maintain intended track, thus negatively impact navigational safety.
- **Mixing of vessel types.** Vessels of differing types will naturally segregate not only due to vessel requirements for a safe transit, such depth of water or sea state limitations, but also to avoid each other for safety reasons. Smaller or slow moving vessels will tend to avoid major shipping lanes containing larger, faster moving vessels. When these vessels are displaced into the routes of other vessel types the number of overtaking situations will increase, thereby increasing risk, particularly if sea space is limited.
- **Complexity of vessel interactions.** In areas where interactions are more complex, impacts due to new obstructions could be amplified. Complexity can be driven by a number of factors, such as those previously discussed above where routes are converging/crossing or mixing of vessel types. Complexity could also be driven by other operations being conducted in the area such as fishing, recreational traffic or pilot boarding areas.

- **Large distances along a route.** The longer the distance of obstructions along a route, the greater the risk. Increased distance equates to increased exposure to the hazard.
- **Undersized routing measures.** If an existing TSS or other routing measure was not designed to accommodate existing or future density and size of vessels, additional separation may be appropriate.

Potential mitigations of risk

- **Mitigating factors such as pilotage areas, vessel traffic services, precautionary areas, areas to be avoided, anchorages, limited access areas, and routing measures.** Mitigating factors can be used to lower risk in many ways, such as increasing predictability of vessel traffic, increasing local knowledge and expertise, increasing situational awareness, or improving navigation. Proper marking and lighting of the structures of a wind farm can be used for navigation purposes improving the ability to fix a vessel's position.
- **Low traffic density.** Low traffic density will decrease vessel interactions and allow for more space for transiting vessels to maneuver.
- **Predominantly smaller vessels.** If only smaller vessels call on a port or if large vessel transits are very infrequent, smaller planning distances may be appropriate; especially if other mitigations are in place for the large vessel transits, such as tug escorts or moving safety zones.
- **Distance from ports, shoals and other obstructions.** If there are large distances to other hazards vessels will be able to adjust their route to ensure safe transits.
- **Aids to Navigation.** Enhanced Aids to Navigation may assist vessels in more accurately determining their position as well as identifying potential hazards.

Other Critical routes- Refers to routes that may not be obvious when looking at regular traffic patterns and may involve specific or unique requirements of particular vessels.

- **Natural Deepwater Approaches.** Natural deep water approaches may not be used by the majority of vessels but may be necessary for some vessels to enter or depart port at present or in the future.
- **Unique Transits.** Other requirements such as sea space, draft, etc. necessary for the safe transit of infrequent, but important vessel transits, such as periodic provisioning of remote communities.

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ENCLOSURE 3

Federal Register Notice

USCG-2016-0165

ACTION: Notice.

SUMMARY: The Coast Guard announces that it is removing the conditions of entry on vessels arriving from the country of the Republic of Cuba.

DATES: The policy announced in this notice is effective on March 22, 2016.

ADDRESSES: This notice is part of docket USCG–2016–0201 and is available online by going to <http://www.regulations.gov>, inserting USCG–2016–0201 in the “Keyword” box, and then clicking “Search.”

FOR FURTHER INFORMATION CONTACT: If you have questions on this notice, contact Mr. Michael Brown, Office of Domestic and International Port Security, United States Coast Guard, telephone 202–372–1081 and email Michael.W.Brown@uscg.mil.

SUPPLEMENTARY INFORMATION:

Background and Purpose

Section 70110 of title 46, United States Code, enacted as part of section 102(a) of the Maritime Transportation Security Act of 2002 (Pub. L. 107–295, Nov. 25, 2002) authorizes the Secretary of Homeland Security to impose conditions of entry on vessels requesting entry into the United States arriving from ports that are not maintaining effective anti-terrorism measures. It also requires public notice of the ineffective anti-terrorism measures. The Secretary has delegated to the Coast Guard authority to carry out the provisions of this section. Previous notices have imposed or removed conditions of entry on vessels arriving from certain countries, and those conditions of entry and the countries they pertain to remain in effect unless modified by this notice. On April 4, 2008 the Coast Guard published a Notice of Policy in the *Federal Register*, (73 FR 18546), announcing that it had determined that ports in the Republic of Cuba were not maintaining effective anti-terrorism measures, and imposed conditions of entry.

Based on port assessments conducted in February 2016, the Coast Guard has determined that the Republic of Cuba is now maintaining effective anti-terrorism measures, and is accordingly removing the conditions of entry announced in the previously published Notice of Policy. With this notice, the current list of countries not maintaining effective anti-terrorism measures is as follows: Cambodia, Cameroon, Comoros, Cote d'Ivoire, Equatorial Guinea, The Gambia, Guinea-Bissau, Iran, Liberia, Libya, Madagascar, Nigeria, Sao Tome and Principe, Syria, Timor-Leste, Venezuela and Yemen. Notwithstanding

this Notice, the “Unauthorized Entry into Cuban Territorial Waters” regulations located at 33 CFR part 107 remain in effect.

This notice is issued under authority of 46 U.S.C. 70110(d).

Dated: March 16, 2016.

Fred M. Midgette,
Vice Admiral, USCG, Deputy Commandant for Operations.

[FR Doc. 2016-06431 Filed 3-21-16; 8:45 am]

BILLING CODE 9110-04-P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

[Docket No. USCG–2016–0165]

Port Access Route Study (PARS): In Nantucket Sound

AGENCY: Coast Guard, DHS.

ACTION: Notice of study; request for comments.

SUMMARY: The Coast Guard is conducting a Port Access Route Study (PARS) to determine whether it should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as increased vessels traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty.

DATES: Comments and related material must be received on or before June 20, 2016.

ADDRESSES: You may submit comments, or view documents noted to be available in the docket, and comments made in response to this notice using the Federal eRulemaking Portal (<http://www.regulations.gov>), docket USCG–2016–0165.

FOR FURTHER INFORMATION CONTACT: If you have questions on this notice, email D01-SMB-NantucketPARS@uscg.mil.

SUPPLEMENTARY INFORMATION:

I. Public Participation and Request for Comments

We encourage you to participate in this study by submitting comments and related materials. All comments received will be posted without change to <http://www.regulations.gov> and will include any personal information you have provided.

A. Submitting Comments: You may submit your comments and material online via <http://www.regulations.gov>. Type “USCG–2016–0165” into the search bar and click search, next to the displayed search results click “Comment Now”, which will open the comment page for this study. We will

consider all comments and material received during the comment period.

B. Viewing Comments and Documents: To view comments, as well as documents mentioned in this preamble as being available in the docket, go to <http://www.regulations.gov>, type “USCG–2016–0165” into the search bar and click search, next to the displayed search results click “Open Docket Folder”, which will display all comments and documents associated with this study.

C. Public Meeting: The Coast Guard may hold public meeting(s) if there is sufficient public interest. You must submit a request for one on or before April 12, 2016. You may submit your request for a public meeting online via <http://www.regulations.gov>. Please explain why you believe a public meeting would be beneficial. If we determine that a public meeting would aid in the study, we will hold a meeting at a time and place announced by a later notice in the *Federal Register*.

D. Privacy Act: Anyone can search the electronic form of comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review a Privacy Act notice regarding our public dockets in the January 17, 2008, issue of the *Federal Register* (73 FR 3316).

II. Definitions

The following definitions (except “Regulated Navigation Area”) are from the International Maritime Organization’s (IMO’s) publication “Ships’ Routing” Tenth Edition 2010 and should help you review this notice:

Area to be avoided (ATBA) means a routing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or certain classes of ships.

Deep-water route means a route within defined limits, which has been accurately surveyed for clearance of sea bottom and submerged obstacles as indicated on the chart.

Inshore traffic zone means a routing measure comprising a designated area between the landward boundary of a traffic separation scheme and the adjacent coast, to be used in accordance with the provisions of Rule 10(d), as amended, of the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS).

Precautionary area means a routing measure comprising an area within defined limits where ships must

navigate with particular caution and within which the direction of traffic flow may be recommended.

Recommended route means a route of undefined width, for the convenience of ships in transit, which is often marked by centerline buoys.

Recommended track is a route which has been specially examined to ensure so far as possible that it is free of dangers and along which vessels are advised to navigate.

Regulated Navigation Area (RNA) means a water area within a defined boundary for which regulations for vessels navigating within the area have been established under 33 CFR part 165.

Roundabout means a routing measure comprising a separation point or circular separation zone and a circular traffic lane within defined limits. Traffic within the roundabout is separated by moving in a counterclockwise direction around the separation point or zone.

Separation zone or separation line means a zone or line separating the traffic lanes in which ships are proceeding in opposite or nearly opposite directions; or separating a traffic lane from the adjacent sea area; or separating traffic lanes designated for particular classes of ship proceeding in the same direction.

Traffic lane means an area within defined limits in which one-way traffic is established. Natural obstacles, including those forming separation zones, may constitute a boundary.

Traffic Separation Scheme (TSS) means a routing measure aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes.

Two-way route means a route within defined limits inside which two-way traffic is established, aimed at providing safe passage of ships through waters where navigation is difficult or dangerous.

Vessel routing system means any system of one or more routes or routing measures aimed at reducing the risk of casualties; it includes traffic separation schemes, two-way routes, recommended tracks, areas to be avoided, no anchoring areas, inshore traffic zones, roundabouts, precautionary areas, and deep-water routes.

III. Background and Purpose

A. Section 310 of the 2015 Coast Guard Authorization Act, Public Law 114–120 signed by the President on February 8, 2016, directs the Commandant of the Coast Guard to complete and submit to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and

Transportation of the Senate a Port Access Route Study (PARS) of Nantucket Sound using the standards and methodology of the Atlantic Coast Port Access Route Study, to determine whether the Coast Guard should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as increased vessel traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty. The Atlantic Coast Port Access Route Study contained in the “marine planning guidelines” of the Study are included in the docket for this notice.

B. The purpose of this notice is to announce commencement of this PARS and to solicit public comments. We encourage you to participate in the study process by submitting comments in response to this notice. Comments should address impacts to navigation in Nantucket Sound resulting from factors such as increased vessel traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty.

IV. This PARS: Timeline, Study Area, and Process

The First Coast Guard District will conduct this PARS. The study will commence upon publication of this notice and may take 10 months to complete.

The study area is described as Nantucket Sound, an area bounded by a line connecting the following geographic positions, including the entrance and exit routes to the sound but not the individual harbors.

- 41°41' N., 070°00' W.;
- 41°20' N., 070°00' W.;
- 41°16' N., 070°15' W.;
- 41°28' N., 070°40' W.;
- 41°34' N., 070°40' W.;

An illustration showing the study area is available in the docket.

We will publish the results of the PARS in the **Federal Register**. It is possible that the study may validate the status quo (no routing measures) and conclude that no changes are necessary. It is also possible that the study may recommend one or more changes to address navigational safety and the efficiency of vessel traffic management. The recommendations may lead to future rulemakings or appropriate international agreements.

This notice is published under the authority of 5 U.S.C. 552(a).

Dated: March 10, 2016.

L. L. Fagan,
Rear Admiral, U.S. Coast Guard, Commander,
First Coast Guard District.

[FR Doc. 2016-06424 Filed 3–21–16; 8:45 am]

BILLING CODE 9110-04-P

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

[CIS No. 2579–15; DHS Docket No. USCIS–2014–0011]

RIN 1615–ZB47

Extension of the Designation of Liberia for Temporary Protected Status

AGENCY: U.S. Citizenship and Immigration Services, Department of Homeland Security.

ACTION: Notice.

SUMMARY: Through this Notice, the Department of Homeland Security (DHS) announces that the Secretary of Homeland Security (Secretary) is extending the designation of Liberia for Temporary Protected Status (TPS) for 6 months, from May 22, 2016, through November 21, 2016.

The extension allows currently eligible TPS beneficiaries to retain TPS through November 21, 2016, so long as they otherwise continue to meet the eligibility requirements for TPS. The Secretary has determined that an extension is warranted because, although there have been significant improvements, conditions in Liberia supporting its November 2014 designation for TPS continue to be met.

Through this Notice, DHS also sets forth procedures necessary for eligible nationals of Liberia (or aliens having no nationality who last habitually resided in Liberia) to re-register for TPS and to apply for renewal of their Employment Authorization Documents (EADs) with U.S. Citizenship and Immigration Services (USCIS). Re-registration is limited to persons who have previously registered for TPS under the designation of Liberia and whose applications have been granted. Certain nationals of Liberia (or aliens having no nationality who last habitually resided in Liberia) who have not previously applied for TPS may be eligible to apply under the late initial registration provisions if they meet (1) at least one of the late initial filing criteria, and (2) all TPS eligibility criteria (including continuous residence in the United States since November 20, 2014, and continuous physical presence in the United States since November 21, 2014).

For individuals who have already been granted TPS under Liberia's designation, the 60-day re-registration period runs from March 22, 2016 through May 23, 2016. USCIS will issue new EADs with a November 21, 2016, expiration date to eligible Liberia TPS

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ENCLOSURE 4

Marine Safety
Information Bulletin
01-16

This email is sent to you as a member of the Marine Safety Information Bulletin mass emailing system.

**Commander
U.S. Coast Guard Sector Southeastern New England**

1 Little Harbor Road
Woods Hole, MA 02543
Tel: 508-457-3211

MARINE SAFETY INFORMATION BULLETIN

[MSIB # 01-16]

22 March 2016

**NANTUCKET SOUND PORT ACCESS ROUTE STUDY
Comments requested by June 20, 2016**

The Coast Guard is conducting a Port Access Route Study (PARS) to determine whether it should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as increased vessels traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty.

The Nantucket Sound PARS was announced in the March 22, 2016 edition of the Federal Register. See <https://www.federalregister.gov/articles/2016/03/22/2016-06424/port-access-route-study-pars-in-nantucket-sound>.

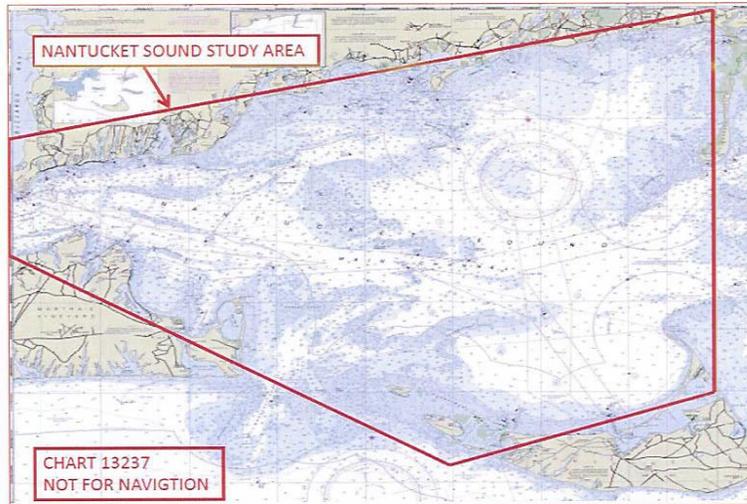
We encourage you to participate in the study process by submitting comments. Comments should address impacts to navigation in Nantucket Sound resulting from factors such as increased vessel traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty.

You may submit your comments and material online via <http://www.regulations.gov>. Type "USCG-2016-0165" into the search bar and click search. Next to the displayed search results click "Comment Now", which will open the comment page for this study. We will consider all comments and material received during the 90-day comment period, which ends on June 20, 2016.

The Coast Guard may hold public meeting(s) if there is sufficient public interest. You must submit a request for one on or before April 12, 2016. You may submit your request for a public meeting online via <http://www.regulations.gov>. Please explain why you believe a public meeting would be beneficial. If we determine that a public meeting would aid in the study, we will hold a meeting at a time and place announced by a later Marine Safety Information Bulletin and notice in the Federal Register.

The Coast Guard will conduct the Nantucket Sound PARS using the standards and methodology of the Atlantic Coast Port Access Route Study, to determine whether we should revise existing regulations to improve navigation safety in Nantucket Sound due to factors such as increased vessel traffic, changing vessel traffic patterns, weather conditions, or navigational difficulty. The “marine planning guidelines” of the Atlantic Coast Port Access Route Study are included in the docket at the www.regulations.gov, docket USCG-2016-0165.

The Nantucket Sound PARS study area is depicted below. The exact coordinates of the study area are listed in the Federal Register notice referenced above:



We will publish the results of the Nantucket Sound PARS in the Federal Register. It is possible that the study may validate the status quo (no routing measures) and conclude that no changes are necessary. It is also possible that the study may recommend one or more changes to address navigational safety and the efficiency of vessel traffic management. The recommendations may lead to future rulemakings or appropriate international agreements.

Questions regarding this bulletin may be addressed to Mr. Edward G. LeBlanc at U.S. Coast Guard Sector Southeastern New England, Edward.G.LeBlanc@uscg.mil, 401-435-2351.

J. T. Kondratowicz
Captain, U.S. Coast Guard
Captain of the Port
Southeastern New England