

Visualization Study for Offshore North Carolina

Task 6: Document and Analyze Meteorological Conditions

Prepared for
Bureau of Safety and Environmental Enforcement (BSEE)
and the
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Prepared by
Timothy Lavalley, P.E.
LPES, Inc.
tlavalley@lpesinc.com
(757) 357-0730

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1.0 Introduction

This report includes a concise rollup of the meteorological metrics associated with visibility along the North Carolina coast. It specifically addresses locations identified as *of special interest* to both the National Park Service and the public during the planning process for offshore wind energy facilities. A list of these locations appears in Table 1-1. The purpose of this report is to help characterize the visual impacts related to these locations with respect to recorded weather conditions in the area. Meteorological metrics associated with visibility were developed based on the best available information, and this report identifies the methodology used to develop the projections. It includes a description of the data sources used, how visibility at each location was determined, and meteorological metrics associated with cloud cover and wind at each location.

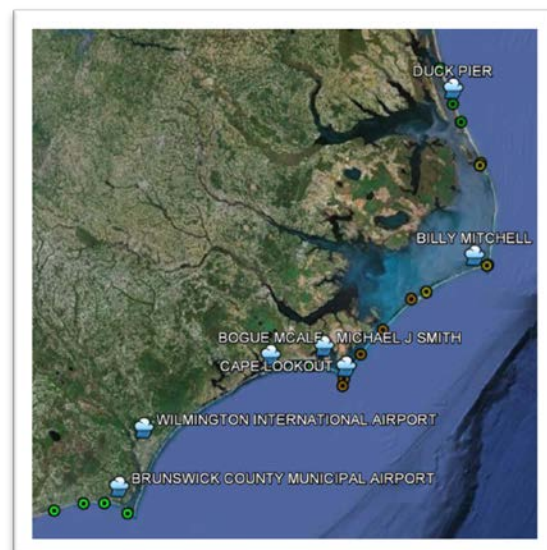
Table 1-1. Locations of Interest and Their Location

Location	Northing [m]	Easting [m]
Coquina Beach (Bodie Island)	3965518	449636
Bodie Island Lighthouse	3963964	449116
Lighthouse Beach (Buxton)	3901361	452588
Cape Hatteras Lighthouse	3900952	451888
Ocracoke Beach (Ocracoke Island)	3885307	413170
Cape Lookout Lighthouse	3832296	360232
Portsmouth Life Saving Station Tower	3881149	403561
Great Island Camps	3847428	371061
Long Point Camps	3862474	385316
Cape Point	3827887	359289
Corolla Lighthouse	4026045	425494
Beach at Duck	4003088	432931
Kitty Hawk	3991661	437828
Bald Head Island	3750432	222810
Atlantic Beach	3840870	340614
Oak Island	3756251	207938
Holden Beach	3755452	194726
Sunset Beach	3750135	176142

2.0 Data Collection and Preprocessing

Ten years of hourly meteorological data was obtained from the NOAA database for seven weather stations along the North Carolina coastline including Duck Pier, Billy Mitchell Airport, Bogue Field, Michael J. Smith Field, Cape Lookout, Wilmington International Airport, and Brunswick County Municipal Airport. Weather stations along the coastline are more reflective of weather conditions at coastal locations; therefore, inland weather stations were avoided. Although some data gaps existed, the availability of hourly data over the last 10 years in the region was excellent and sufficient to provide a full review of the meteorological conditions at the locations.

The two nearest weather stations were assigned to each location. Meteorological data was weighted based on its relative distance to each station to

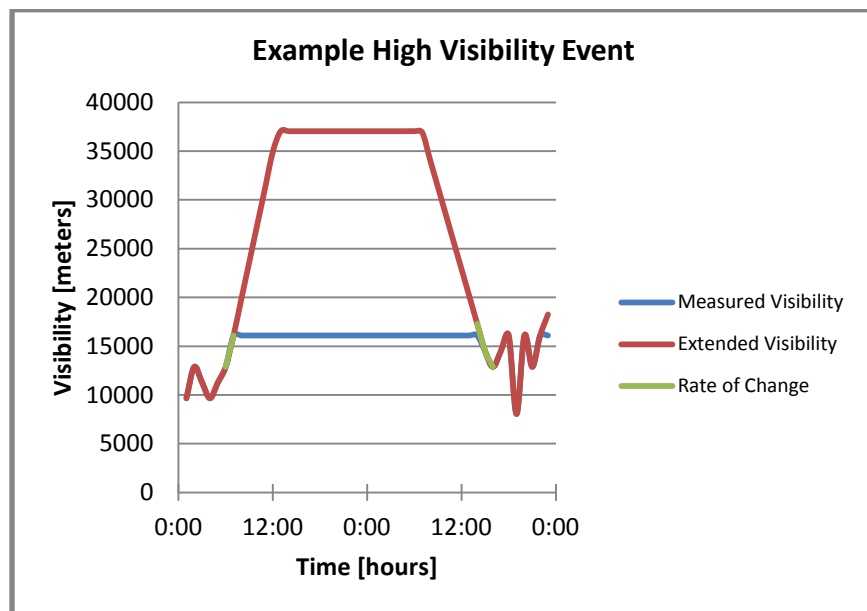


estimate conditions at any given location. A detailed overview of each location, their assigned weather station, and the relative distance of assigned weather station to each location is provided in Table A-1.

Due to the limited number of weather stations in the area that record hourly meteorological data, and the close proximity of the locations, some locations have similar if not identical visibility profiles. However, calculation of the visibility metrics was specifically designed to differentiate between the locations within the bounds of the available information.

3.0 Methodology

NOAA surface visibility data is provided up to 10 statute miles of a given location. For example, the visibility of a given airport is reported to be between 0 and 10 miles at any given time. Ten miles of visibility is considered full visibility and is the number normally reported on clear days. A simple algorithm was developed based on the movement of periods of high visibility at each location to linearly extrapolate the acquired information up to 20 nautical miles (nm). As hourly measurements at a given location approached and receded from 16,000 meters [the highest measured value], the rate of change in visibility in meters/hour was determined. This rate of change of visibility was applied to subsequent visibility measurements to extend the range of reported values to 37,040 meters (or 20 nm).

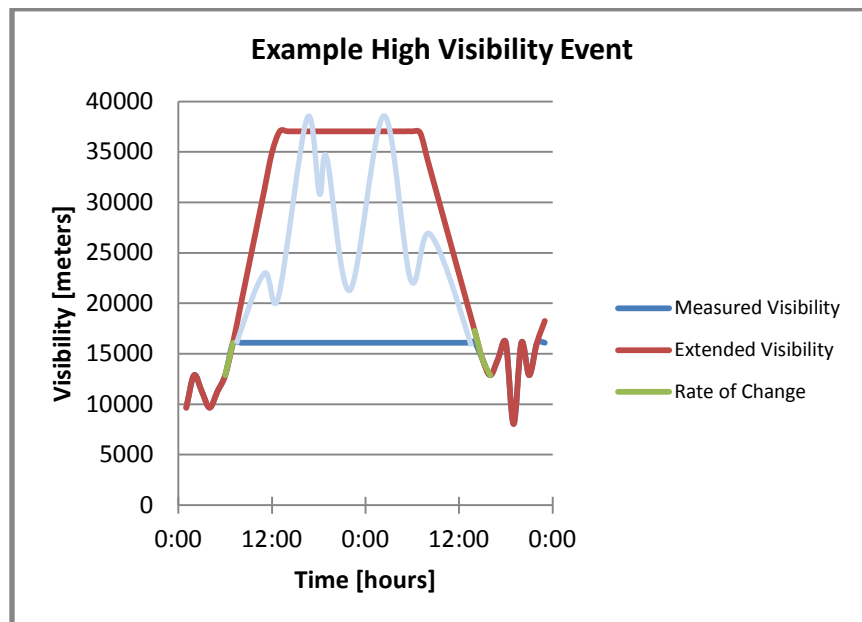


For example, visibility might be increasing at a rate of 5,000 meters per hour as it approaches 16,000 meters. Therefore, at a “clearing rate” of 5,000 meters per hour it would take 4.2 hours for the visibility to reach 37,040 meters. In the interim hours the visibility was estimated at 21,000 meters, 26,000 meters, 31,000 meters, and 36,000 meters. An example of a 48-hour period with a period of high visibility is shown above.

Initially it was expected that visibility would be directly related to wind speed, direction, and percent overcast. However, the relationship between these metrics was indirect. For example, it

was expected that as a location became more cloudy the visibility would decrease. This was only sometimes true; for example, in the case of fog where the clouds were at ground level. In other cases the overcast conditions seemed to make for higher visibility presumably by reducing haze-like conditions. Therefore, the simple linear extrapolation of the data before and after periods when the visibility was reported at 10 miles (or 16,000 meters) was used to extend the range out to 10, 15 and 20 nm.

This approach has its shortcomings as it does not have direct measurements of visibility, and the visibility estimates and associated metrics at the 10 nm range have less uncertainty than those at further distances. In addition, the extrapolation only accounts for a rise in visibility up to 37,040 meters but not fluctuations between 16,000 and 37,040 during a period of high visibility. Therefore, it tends to overestimate the amount of time objects are visible at further distances. This is shown in the adaption below. The light blue line represents the expected actual visibility beyond 16,000 meters (or 10 miles), and the red line would be the estimated visibility, which shows the expected actual visibility is somewhat less than the estimated visibility of 20 nm.



4.0 Meteorological Metrics and Results

A database was developed using Digital Visual Fortran to input the meteorological data and calculate the metrics of interest. Visibility metrics that were calculated include:

- The average number of days that there is visibility to 10 nm, 15 nm, and 20 nm
- The average visibility to 10 nm, 15 nm, and 20 nm in each season (Dec 22-Mar 21; Mar 22-June 21; June 22- Sept 21; Sept 22-Dec 21)
- The average number of days that are sunny
- The average number of days that are sunny in each of the four seasons
- The average percent of each day that is sunny, cloudy and foggy
- The average number of days that are foggy/cloudy for at least 50 percent of the day
- The typical (based on average) wind rose plot for each month.

These metrics are described below with roll-up tables for each one. Detailed metrics for each location are provided in Attachment A.

4.1 Visibility

Visibility is a measure of the horizontal opacity of the atmosphere at the point of observation and is expressed in terms of the horizontal distance at which a person should be able to see and identify, in the daytime, a prominent dark object against the sky at the horizon and, at night, a known, preferably unfocused, moderately intense light source (i.e., FAA L-864 aviation warning light).

Hourly measurements of visibility at each of the weather stations listed above were consolidated to determine average visibility metrics at each of the locations of interest. Table 4-1 shows the average number of days that there is visibility to 10 nm, 15 nm, and 20 nm at all locations combined. During the day there is visibility to 10 nm at least 50% of the day 34.8% of the time or 127 days per year. During the night there is visibility to 10 nm at least 50% of the day 42.7% of the time or 156 nights per year. Tables A-2 through A-4 show the average number of days there is visibility to 10 nm, 15 nm, and 20 nm at each location. The variability across all 18 locations is low with a standard deviation of 2.9% for daytime and 6.1% for nighttime. This is due to the consistent nature of meteorological conditions along the North Carolina coast. Notably, *daytime* was assumed to be between the hours of 6 AM and 7 PM, corresponding with average sunrises and sunsets in the region.

Table 4-1. Average Visibility to for All Locations Combined

Condition/Period	Days 50% Visible [%]	Days 75% Visible [%]	Days 90% Visible [%]	Days 50% Visible [days/year]	Days 75% Visible [days/year]	Days 90% Visible [days/year]
10 nm						
Days	34.8%	27.3%	23.2%	127	100	85
Nights	42.7%	21.8%	18.4%	156	80	67
24- Hour Periods	36.1%	21.1%	16.0%	132	77	58
15 nm						
Days	23.1%	18.4%	15.1%	84	67	55
Nights	26.2%	11.5%	10.1%	96	42	37
24- Hour Periods	21.6%	13.6%	9.9%	79	49	36
20 nm						
Days	18.1%	14.3%	11.1%	66	52	41
Nights	18.6%	8.2%	6.8%	68	30	25
24- Hour Periods	16.3%	10.1%	7.7%	60	37	28

Table 4-2 shows the average visibility in each season to 10 nm, 15 nm, and 20 nm at all locations. During the daytime there is visibility to 10 nm at least 50% of the day 39.6% of the days in the winter and 27.3% of the days in the summer. This is expected due to hazy conditions during the summer. As with annual visibility and for the same reasons, these conditions do not vary greatly at locations along on North Carolina coast. Tables A-5 through A-16 show the average number of days there is visibility to 10 nm, 15 nm, and 20 nm at each location during each season.

Table 4-2. Average Visibility to for All Locations Combined for Each Season

Condition/ Period	Days 50% Visible [%]	Days 75% Visible [%]	Days 90% Visible [%]	Condition/ Period	Days 50% Visible [%]	Days 75% Visible [%]	Days 90% Visible [%]
Winter (December 22 - March 21)				Summer (June 22 - September 21)			
10 nm				10 nm			
Days	39.6%	31.6%	25.7%	Days	27.3%	20.8%	17.1%
Nights	46.0%	23.2%	20.3%	Nights	36.6%	18.2%	15.0%
24- Hour Periods	39.4%	24.2%	18.4%	24- Hour Periods	29.1%	16.5%	12.7%
15 nm				15 nm			
Days	27.2%	21.7%	17.6%	Days	16.9%	13.3%	10.7%
Nights	30.6%	13.4%	11.3%	Nights	19.8%	8.7%	6.9%
24- Hour Periods	25.7%	16.7%	11.8%	24- Hour Periods	15.7%	10.1%	7.1%
20 nm				20 nm			
Days	22.1%	17.8%	14.1%	Days	12.6%	9.5%	7.3%
Nights	22.7%	9.8%	8.2%	Nights	12.8%	5.1%	4.8%
24- Hour Periods	19.9%	12.7%	8.7%	24- Hour Periods	11.5%	6.6%	4.7%
Spring (March 22- June21)				Fall (September 22 - December 21)			
10 nm				10 nm			
Days	33.4%	24.9%	20.5%	Days	39.3%	32.2%	28.5%
Nights	42.4%	20.9%	18.1%	Nights	46.5%	24.7%	20.7%
24- Hour Periods	35.8%	19.1%	14.1%	24- Hour Periods	39.9%	25.9%	19.4%
15 nm				15 nm			
Days	20.9%	15.8%	12.7%	Days	28.3%	23.2%	19.1%
Nights	23.6%	9.8%	8.7%	Nights	30.1%	14.4%	12.7%
24- Hour Periods	19.1%	11.2%	7.9%	24- Hour Periods	27.1%	17.3%	13.0%
20 nm				20 nm			
Days	14.8%	11.3%	8.9%	Days	22.7%	18.3%	15.1%
Nights	15.8%	6.8%	6.0%	Nights	22.9%	10.4%	9.1%
24- Hour Periods	12.9%	8.4%	6.0%	24- Hour Periods	21.2%	13.2%	10.0%

4.2 Meteorological Metrics Associated with Cloud Cover

Monitored sky conditions at each weather monitoring station include cloud cover in the form of ceiling height. Ceiling heights are based on the height above ground level of the lowest cloud or obscuring phenomena layer aloft with 5/8 or more summation total sky cover. A *clear* condition is where 5/8 of the total sky cover has a measured ceiling height of 22,000 meters (i.e. unlimited). A *cloudy* condition is any time that the sky was not clear. Foggy conditions are defined as periods when visibility is limited to less than one kilometer.

Table 4-3 shows the average number of days, nights, and 24-hour periods that are clear, cloudy, and foggy. Table 4-3 also includes the average number of days that are foggy/cloudy at least 50% of the day. During the day it is clear at least 50% of the day 70.9% of the time, or 259 days per year. During the night it is clear at least 50% of the day 75.8% of the time, or 277 nights per year. The variability across all 18 locations is low with a standard deviation of 2.1% for the clear and cloudy metrics, and 0.2% for the foggy metrics. Tables A-17 through A-19 show the average number of days, nights, and 24-hour periods that are clear, cloudy, and foggy at each location.

Table 4-3. Average Number of Days That Are Clear, Cloudy, and Foggy

Condition/Period	Days with Condition 50% of the Time [%]	Days with Condition 75% of the Time [%]	Days with Condition 90% of the Time [%]	Days with Condition 50% of the Time [days/year]	Days with Condition 75% of the Time [days/year]	Days with Condition 90% of the Time [days/year]
Clear						
Days	70.9%	56.7%	42.1%	259	207	154
Nights	75.8%	53.0%	43.8%	277	193	160
24- Hour Periods	73.0%	51.8%	36.2%	266	189	132
Cloudy						
Days	29.1%	43.3%	57.9%	106	158	211
Nights	24.2%	47.0%	56.2%	88	172	205
24- Hour Periods	24.3%	43.2%	63.8%	89	158	233
Foggy						
Days	0.48%	0.14%	0.04%	2	1	<1
Nights	0.19%	0.03%	0.02%	1	<1	<1
24- Hour Periods	0.19%	0.03%	0.02%	1	<1	<1

Table 4-4 shows the average number of days that are sunny in each of the four seasons. During the daytime it is clear at least 50% of the day 64.3% of the days in the winter, and 80.0% of the days in the summer. As with annual visibility and for the same reasons, these conditions do not vary greatly at locations along on North Carolina coast. Tables A-20 through A-23 show the average number of days that are sunny in each of the four seasons at each location.

Table 4-4. Average Number of Days That Are Clear for Each Season

Season/Period	Periods Clear 50% of the Time [%]	Periods Clear 75% of the Time [%]	Periods Clear 50% of the Time [periods/season]	Periods Clear 75% of the Time [periods/season]
Winter (December 22 - March 21) (90 Days)				
Days	64.3%	52.2%	58	47
Nights	69.6%	46.1%	63	42
24- Hour Periods	65.5%	47.3%	59	43
Spring (March 22- June21) (92 Days)				
Days	72.6%	57.7%	67	53
Nights	78.4%	55.6%	72	51
24- Hour Periods	75.2%	53.4%	69	49
Summer (June 22 - September 21) (91 Days)				
Days	80.0%	61.6%	73	56
Nights	86.6%	62.3%	79	57
24- Hour Periods	83.6%	58.8%	76	54
Fall (September 22 - December 21) (92 Days)				
Days	67.2%	54.6%	62	50
Nights	69.6%	47.2%	64	43
24- Hour Periods	67.7%	47.3%	62	43

Table 4-5 shows the average percent of each day that is sunny, cloudy, and foggy. During the daytime hours the sky is clear 67.8% of the time and cloudy the remaining 32.2% of the time overall. It is foggy, with visibility limited to less than 1 kilometer, 1.2% of the time. The variability across all 18 locations is low with a standard deviation of 1.8% for the daytime and

the nighttime. Table A-24 shows the average percent of each day that is sunny and cloudy. Table A-25 shows the average percent of each day that is foggy at each location.

Table 4-5. Average Percent of Each Day That Is Clear, Cloudy, and Foggy

Period	Percent Clear [%]	Percent Cloudy [%]	Percent Foggy [%]
Days	67.8%	32.2%	1.2%
Nights	71.0%	29.0%	0.6%
24- Hour Periods	69.3%	30.7%	0.9%

4.3 Wind Speed and Direction

In general, winds along the North Carolina coast predominately blow northeast along the jet stream during the early parts of the year and shift to a southwest pattern consistent with a coastal breeze from September until December. Wind speed typically range from 0 to 10 m/s. A wind rose is a graphic tool used by meteorologists to give a succinct view of how wind speed and direction are typically distributed at a particular location. Using a polar coordinate system of gridding, the frequency of winds over a long time period are plotted by wind direction, with color bands showing wind ranges. The directions of the rose with the longest spoke show the wind direction with the greatest frequency. The typical (based on average) wind rose plot for each month is provided in Attachment B. For conventional purposes wind roses are based on percent hours of wind blowing toward a particular direction.

5.0 Conclusion

This report includes a concise rollup of the meteorological metrics associated with visibility along the North Carolina coast. It specifically addresses locations identified as *of special interest* to both the National Park Service and the public during the planning process for offshore wind energy facilities. Summer days have the lowest visibility and winter nights have the highest. During the day there is visibility to 10 nm at least 50% of the day 34.8% of the time, or 127 days per year. This drops to 27.3% of the days in the summer. In general, the sky is clear 67.8% of the time and cloudy the remaining 32.2% of the time during the daytime hours. It is rarely foggy. For all metrics, variability across all 18 locations is low due to the consistent nature of meteorological conditions along the North Carolina coast.

Attachment A - Meteorological Metrics Associated with Visibility for All Locations

Table A-1. Site Locations and Assigned Weather Stations

Location/USAF Weather Station Number	Location/Weather Station	Northing [m]	Easting[m]	Distance to Location [miles]	Assigned Weight
1	Coquina Beach (Bodie Island)	449636	449636		Weight
998209	Duck Pier	4004506	432560	26.4	0.6106
723139	Billy Mitchell Field	3899059	443402	41.5	0.3894
2	Bodie Island Lighthouse	449116	449116		
998209	Duck Pier	4004506	432560	27.2	0.598
723139	Billy Mitchell Field	3899059	443402	40.5	0.402
3	Lighthouse Beach (Buxton)	452588	452588		
723139	Billy Mitchell Field	3899059	443402	5.9	0.9173
998209	Duck Pier	4004506	432560	65.3	0.0827
4	Cape Hatteras Lighthouse	451888	451888		
723139	Billy Mitchell Field	3899059	443402	5.4	0.9238
998209	Duck Pier	4004506	432560	65.5	0.0762
5	Ocracoke Beach (Ocracoke Island)	413170	413170		
723139	Billy Mitchell Field	3899059	443402	20.6	0.6928
994160	Cape Lookout	3831617	360923	46.6	0.3072
6	Cape Lookout Lighthouse	360232	360232		
994160	Cape Lookout	3831617	360923	0.6	0.9485
723037	Michael J Smith Field	3844699	347383	11.1	0.0515
7	Portsmouth Life Saving Station Tower	403561	403561		
723139	Billy Mitchell Field	3899059	443402	27.1	0.5994
994160	Cape Lookout	3831617	360923	40.6	0.4006
8	Great Island Camps	371061	371061		
994160	Cape Lookout	3831617	360923	11.7	0.5593
723037	Michael J Smith Field	3844699	347383	14.8	0.4407
9	Long Point Camps	385316	385316		
994160	Cape Lookout	3831617	360923	24.4	0.5157
723037	Michael J Smith Field	3844699	347383	26.0	0.4843
10	Cape Point	359289	359289		
994160	Cape Lookout	3831617	360923	2.5	0.835
723037	Michael J Smith Field	3844699	347383	12.8	0.165
11	Corolla Lighthouse	425494	425494		
998209	Duck Pier	4004506	432560	14.1	0.8498
723139	Billy Mitchell Field	3899059	443402	79.7	0.1502
12	Beach at Duck	432931	432931		
998209	Duck Pier	4004506	432560	0.9	0.9862
723139	Billy Mitchell Field	3899059	443402	65.0	0.0138
13	Kitty Hawk	437828	437828		
998209	Duck Pier	4004506	432560	8.6	0.8698
723139	Billy Mitchell Field	3899059	443402	57.6	0.1302
14	Bald Head Island	777301	222810		
722191	Brunswick County Municipal Airport	3758602	216622	6.4	0.819
723013	Wilmington International Airport	3795678	232993	28.8	0.181
15	Atlantic Beach	340614	340614		
723037	Michael J Smith Field	3844699	347383	4.8	0.7416
994160	Cape Lookout	3831617	360923	13.9	0.2584
16	Oak Island	762429	207938		
722191	Brunswick County Municipal Airport	3758602	216622	5.6	0.8385
723013	Wilmington International Airport	3795678	232993	29.0	0.1615
17	Holden Beach	749217	194726		
722191	Brunswick County Municipal Airport	3758602	216622	13.7	0.7151
723013	Wilmington International Airport	3795678	232993	34.5	0.2849
18	Sunset Beach	730633	176142		
722191	Brunswick County Municipal Airport	3758602	216622	25.7	0.6379
723013	Wilmington International Airport	3795678	232993	45.3	0.3621

Table A-2 Visibility to 10 NM

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	1,089	898	749	3,185	34.0%	28.0%	24.0%	DAYS	1,089	898	749	3,185	34.0%	28.0%	24.0%
NIGHTS	1,192	622	538	3,185	37.0%	20.0%	17.0%	NIGHTS	1,192	622	538	3,185	37.0%	20.0%	17.0%
24-HOUR PERIOD	1,087	675	515	3,185	34.0%	21.0%	16.0%	24-HOUR PERIOD	1,087	675	515	3,185	34.0%	21.0%	16.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	1,089	898	749	3,185	34.0%	28.0%	24.0%	DAYS	1,089	898	749	3,185	34.0%	28.0%	24.0%
NIGHTS	1,192	622	538	3,185	37.0%	20.0%	17.0%	NIGHTS	1,192	622	538	3,185	37.0%	20.0%	17.0%
24-HOUR PERIOD	1,087	675	515	3,185	34.0%	21.0%	16.0%	24-HOUR PERIOD	1,087	675	515	3,185	34.0%	21.0%	16.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	1,088	897	748	3,185	34.0%	28.0%	23.0%	DAYS	1,089	898	749	3,185	34.0%	28.0%	24.0%
NIGHTS	1,190	621	537	3,185	37.0%	19.0%	17.0%	NIGHTS	1,192	622	538	3,185	37.0%	20.0%	17.0%
24-HOUR PERIOD	1,085	674	514	3,185	34.0%	21.0%	16.0%	24-HOUR PERIOD	1,087	675	515	3,185	34.0%	21.0%	16.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	1,088	897	748	3,185	34.0%	28.0%	23.0%	DAYS	778	555	447	2,509	31.0%	22.0%	18.0%
NIGHTS	1,190	621	537	3,185	37.0%	19.0%	17.0%	NIGHTS	1,138	491	393	2,509	45.0%	20.0%	16.0%
24-HOUR PERIOD	1,085	674	514	3,185	34.0%	21.0%	16.0%	24-HOUR PERIOD	814	443	299	2,509	32.0%	18.0%	12.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	1,207	972	824	3,503	34.0%	28.0%	24.0%	DAYS	820	632	542	2,105	39.0%	30.0%	26.0%
NIGHTS	1,304	703	611	3,503	37.0%	20.0%	17.0%	NIGHTS	1,057	568	493	2,105	50.0%	27.0%	23.0%
24-HOUR PERIOD	1,206	739	560	3,503	34.0%	21.0%	16.0%	24-HOUR PERIOD	884	514	407	2,105	42.0%	24.0%	19.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	820	632	542	2,106	39.0%	30.0%	26.0%	DAYS	770	549	440	2,509	31.0%	22.0%	18.0%
NIGHTS	1,057	568	493	2,106	50.0%	27.0%	23.0%	NIGHTS	1,122	483	385	2,509	45.0%	19.0%	15.0%
24-HOUR PERIOD	884	514	407	2,106	42.0%	24.0%	19.0%	24-HOUR PERIOD	802	436	292	2,509	32.0%	17.0%	12.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	1,207	972	824	3,503	34.0%	28.0%	24.0%	DAYS	798	577	462	2,509	32.0%	23.0%	18.0%
NIGHTS	1,304	703	611	3,503	37.0%	20.0%	17.0%	NIGHTS	1,187	507	403	2,509	47.0%	20.0%	16.0%
24-HOUR PERIOD	1,206	739	560	3,503	34.0%	21.0%	16.0%	24-HOUR PERIOD	845	454	313	2,509	34.0%	18.0%	12.0%
Great Island Camps								Sunset Beach							
DAYS	820	632	542	2,106	39.0%	30.0%	26.0%	DAYS	810	586	468	2,509	32.0%	23.0%	19.0%
NIGHTS	1,057	568	493	2,106	50.0%	27.0%	23.0%	NIGHTS	1,218	520	407	2,509	49.0%	21.0%	16.0%
24-HOUR PERIOD	884	514	407	2,106	42.0%	24.0%	19.0%	24-HOUR PERIOD	870	460	317	2,509	35.0%	18.0%	13.0%
Long Point Camps								Total							
DAYS	820	632	542	2,106	39.0%	30.0%	26.0%	DAYS	17,291	13,655	11,416	49,866	34.7%	27.4%	22.9%
NIGHTS	1,057	568	493	2,106	50.0%	27.0%	23.0%	NIGHTS	20,898	10,599	9,039	49,866	41.9%	21.3%	18.1%
24-HOUR PERIOD	884	514	407	2,106	42.0%	24.0%	19.0%	24-HOUR	17,768	10,564	7,979	49,866	35.6%	21.2%	16.0%
Cape Point								Average							
DAYS	820	632	542	2,106	39.0%	30.0%	26.0%	DAYS	34.8%	27.3%	23.2%	Standard Deviation			
NIGHTS	1,057	568	493	2,106	50.0%	27.0%	23.0%	NIGHTS	42.7%	21.8%	18.4%	DAYS	2.9%	2.8%	2.9%
24-HOUR PERIOD	884	514	407	2,106	42.0%	24.0%	19.0%	24-HOUR	36.1%	21.1%	16.0%	NIGHTS	6.1%	3.3%	3.0%
												24-HOUR	3.9%	2.3%	2.4%

Table A-3 Visibility to 15 NM

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	737	599	484	3,185	23.0%	19.0%	15.0%	DAYS	737	600	485	3,185	23.0%	19.0%	15.0%
NIGHTS	720	348	310	3,185	23.0%	11.0%	10.0%	NIGHTS	720	348	310	3,185	23.0%	11.0%	10.0%
24-HOUR PERIOD	677	429	322	3,185	21.0%	13.0%	10.0%	24-HOUR PERIOD	677	430	322	3,185	21.0%	14.0%	10.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	736	599	484	3,185	23.0%	19.0%	15.0%	DAYS	737	600	485	3,185	23.0%	19.0%	15.0%
NIGHTS	720	348	310	3,185	23.0%	11.0%	10.0%	NIGHTS	721	349	311	3,185	23.0%	11.0%	10.0%
24-HOUR PERIOD	677	429	322	3,185	21.0%	13.0%	10.0%	24-HOUR PERIOD	677	430	323	3,185	21.0%	14.0%	10.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	736	599	484	3,185	23.0%	19.0%	15.0%	DAYS	737	600	485	3,185	23.0%	19.0%	15.0%
NIGHTS	720	348	310	3,185	23.0%	11.0%	10.0%	NIGHTS	721	349	310	3,185	23.0%	11.0%	10.0%
24-HOUR PERIOD	676	429	322	3,185	21.0%	13.0%	10.0%	24-HOUR PERIOD	677	430	323	3,185	21.0%	14.0%	10.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	736	599	484	3,185	23.0%	19.0%	15.0%	DAYS	532	392	317	2,509	21.0%	16.0%	13.0%
NIGHTS	720	348	310	3,185	23.0%	11.0%	10.0%	NIGHTS	683	234	191	2,509	27.0%	9.0%	8.0%
24-HOUR PERIOD	676	429	322	3,185	21.0%	13.0%	10.0%	24-HOUR PERIOD	502	290	182	2,509	20.0%	12.0%	7.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	805	647	530	3,503	23.0%	18.0%	15.0%	DAYS	536	428	350	2,105	25.0%	20.0%	17.0%
NIGHTS	806	391	347	3,503	23.0%	11.0%	10.0%	NIGHTS	643	296	251	2,105	31.0%	14.0%	12.0%
24-HOUR PERIOD	743	474	355	3,503	21.0%	14.0%	10.0%	24-HOUR PERIOD	514	326	248	2,105	24.0%	15.0%	12.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	536	428	350	2,106	25.0%	20.0%	17.0%	DAYS	534	389	316	2,509	21.0%	16.0%	13.0%
NIGHTS	643	296	251	2,106	31.0%	14.0%	12.0%	NIGHTS	678	237	191	2,509	27.0%	9.0%	8.0%
24-HOUR PERIOD	514	326	248	2,106	24.0%	15.0%	12.0%	24-HOUR PERIOD	501	287	183	2,509	20.0%	11.0%	7.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	805	647	530	3,503	23.0%	18.0%	15.0%	DAYS	530	389	314	2,509	21.0%	16.0%	13.0%
NIGHTS	806	391	347	3,503	23.0%	11.0%	10.0%	NIGHTS	694	241	192	2,509	28.0%	10.0%	8.0%
24-HOUR PERIOD	743	474	355	3,503	21.0%	14.0%	10.0%	24-HOUR PERIOD	505	290	184	2,509	20.0%	12.0%	7.0%
Great Island Camps								Sunset Beach							
DAYS	536	428	350	2,106	25.0%	20.0%	17.0%	DAYS	527	388	308	2,509	21.0%	15.0%	12.0%
NIGHTS	643	296	251	2,106	31.0%	14.0%	12.0%	NIGHTS	696	243	197	2,509	28.0%	10.0%	8.0%
24-HOUR PERIOD	514	326	248	2,106	24.0%	15.0%	12.0%	24-HOUR PERIOD	501	290	188	2,509	20.0%	12.0%	7.0%
Long Point Camps								Total							
DAYS	536	428	350	2,106	25.0%	20.0%	17.0%	DAYS	11,569	9,188	7,456	49,866	23.2%	18.4%	15.0%
NIGHTS	643	296	251	2,106	31.0%	14.0%	12.0%	NIGHTS	12,620	5,655	4,891	49,866	25.3%	11.3%	9.8%
24-HOUR PERIOD	514	326	248	2,106	24.0%	15.0%	12.0%	24-HOUR	10,802	6,741	4,943	49,866	21.7%	13.5%	9.9%
Cape Point								Average							
DAYS	536	428	350	2,106	25.0%	20.0%	17.0%	DAYS	23.1%	18.4%	15.1%	Standard Deviation			
NIGHTS	643	296	251	2,106	31.0%	14.0%	12.0%	NIGHTS	26.2%	11.5%	10.1%	DAYS	1.5%	1.6%	1.6%
24-HOUR PERIOD	514	326	248	2,106	24.0%	15.0%	12.0%	24-HOUR	21.6%	13.6%	9.9%	NIGHTS	3.6%	1.7%	1.5%
												24-HOUR	1.6%	1.2%	1.8%

Table A-4 Visibility to 20 NM

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	572	442	360	3,185	18.0%	14.0%	11.0%	DAYS	572	442	360	3,185	18.0%	14.0%	11.0%
NIGHTS	529	250	223	3,185	17.0%	8.0%	7.0%	NIGHTS	529	250	223	3,185	17.0%	8.0%	7.0%
24-HOUR PERIOD	504	319	239	3,185	16.0%	10.0%	8.0%	24-HOUR PERIOD	504	319	239	3,185	16.0%	10.0%	8.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	572	442	360	3,185	18.0%	14.0%	11.0%	DAYS	572	442	360	3,185	18.0%	14.0%	11.0%
NIGHTS	529	250	223	3,185	17.0%	8.0%	7.0%	NIGHTS	529	250	223	3,185	17.0%	8.0%	7.0%
24-HOUR PERIOD	504	319	239	3,185	16.0%	10.0%	8.0%	24-HOUR PERIOD	505	319	239	3,185	16.0%	10.0%	8.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	572	442	360	3,185	18.0%	14.0%	11.0%	DAYS	572	442	360	3,185	18.0%	14.0%	11.0%
NIGHTS	529	250	223	3,185	17.0%	8.0%	7.0%	NIGHTS	529	250	223	3,185	17.0%	8.0%	7.0%
24-HOUR PERIOD	504	319	239	3,185	16.0%	10.0%	8.0%	24-HOUR PERIOD	504	319	239	3,185	16.0%	10.0%	8.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	572	442	360	3,185	18.0%	14.0%	11.0%	DAYS	410	285	228	2,509	16.0%	11.0%	9.0%
NIGHTS	529	250	223	3,185	17.0%	8.0%	7.0%	NIGHTS	476	163	136	2,509	19.0%	6.0%	5.0%
24-HOUR PERIOD	504	319	239	3,185	16.0%	10.0%	8.0%	24-HOUR PERIOD	365	209	139	2,509	15.0%	8.0%	6.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	635	492	389	3,503	18.0%	14.0%	11.0%	DAYS	423	350	265	2,105	20.0%	17.0%	13.0%
NIGHTS	602	283	251	3,503	17.0%	8.0%	7.0%	NIGHTS	451	205	172	2,105	21.0%	10.0%	8.0%
24-HOUR PERIOD	563	349	266	3,503	16.0%	10.0%	8.0%	24-HOUR PERIOD	389	243	183	2,105	18.0%	12.0%	9.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	423	350	265	2,106	20.0%	17.0%	13.0%	DAYS	410	293	229	2,509	16.0%	12.0%	9.0%
NIGHTS	451	205	172	2,106	21.0%	10.0%	8.0%	NIGHTS	482	164	137	2,509	19.0%	7.0%	5.0%
24-HOUR PERIOD	389	243	183	2,106	18.0%	12.0%	9.0%	24-HOUR PERIOD	369	212	140	2,509	15.0%	8.0%	6.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	635	492	389	3,503	18.0%	14.0%	11.0%	DAYS	403	293	229	2,509	16.0%	12.0%	9.0%
NIGHTS	602	283	251	3,503	17.0%	8.0%	7.0%	NIGHTS	475	153	127	2,509	19.0%	6.0%	5.0%
24-HOUR PERIOD	563	349	266	3,503	16.0%	10.0%	8.0%	24-HOUR PERIOD	367	209	134	2,509	15.0%	8.0%	5.0%
Great Island Camps								Sunset Beach							
DAYS	423	350	265	2,106	20.0%	17.0%	13.0%	DAYS	398	291	229	2,509	16.0%	12.0%	9.0%
NIGHTS	451	205	172	2,106	21.0%	10.0%	8.0%	NIGHTS	465	151	125	2,509	19.0%	6.0%	5.0%
24-HOUR PERIOD	389	243	183	2,106	18.0%	12.0%	9.0%	24-HOUR PERIOD	367	206	134	2,509	15.0%	8.0%	5.0%
Long Point Camps								Total							
DAYS	423	350	265	2,106	20.0%	17.0%	13.0%	DAYS	9,010	6,990	5,538	49,866	18.1%	14.0%	11.1%
NIGHTS	451	205	172	2,106	21.0%	10.0%	8.0%	NIGHTS	9,060	3,972	3,448	49,866	18.2%	8.0%	6.9%
24-HOUR PERIOD	389	243	183	2,106	18.0%	12.0%	9.0%	24-HOUR	8,068	4,982	3,667	49,866	16.2%	10.0%	7.4%
Cape Point								Average							
DAYS	423	350	265	2,106	20.0%	17.0%	13.0%	DAYS	18.1%	14.3%	11.1%	Standard Deviation			
NIGHTS	451	205	172	2,106	21.0%	10.0%	8.0%	NIGHTS	18.6%	8.2%	6.8%	DAYS	1.5%	1.9%	1.5%
24-HOUR PERIOD	389	243	183	2,106	18.0%	12.0%	9.0%	24-HOUR	16.3%	10.1%	7.7%	NIGHTS	1.8%	1.4%	1.1%
												24-HOUR	1.1%	1.5%	1.3%

Table A-5 Visibility to 10 NM - Winter

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	305	254	198	763	40.0%	33.0%	26.0%	DAYS	305	254	198	763	40.0%	33.0%	26.0%
NIGHTS	309	168	143	763	40.0%	22.0%	19.0%	NIGHTS	309	168	143	763	40.0%	22.0%	19.0%
24-HOUR PERIOD	293	183	142	763	38.0%	24.0%	19.0%	24-HOUR PERIOD	293	183	142	763	38.0%	24.0%	19.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	305	254	198	763	40.0%	33.0%	26.0%	DAYS	305	254	198	763	40.0%	33.0%	26.0%
NIGHTS	309	168	143	763	40.0%	22.0%	19.0%	NIGHTS	309	168	143	763	40.0%	22.0%	19.0%
24-HOUR PERIOD	293	183	142	763	38.0%	24.0%	19.0%	24-HOUR PERIOD	293	183	142	763	38.0%	24.0%	19.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	304	253	197	763	40.0%	33.0%	26.0%	DAYS	305	254	198	763	40.0%	33.0%	26.0%
NIGHTS	307	167	142	763	40.0%	22.0%	19.0%	NIGHTS	309	168	143	763	40.0%	22.0%	19.0%
24-HOUR PERIOD	291	182	141	763	38.0%	24.0%	18.0%	24-HOUR PERIOD	293	183	142	763	38.0%	24.0%	19.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	304	253	197	763	40.0%	33.0%	26.0%	DAYS	216	159	131	624	35.0%	25.0%	21.0%
NIGHTS	307	167	142	763	40.0%	22.0%	19.0%	NIGHTS	310	136	112	624	50.0%	22.0%	18.0%
24-HOUR PERIOD	291	182	141	763	38.0%	24.0%	18.0%	24-HOUR PERIOD	218	136	89	624	35.0%	22.0%	14.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	355	293	241	875	41.0%	33.0%	28.0%	DAYS	227	181	150	534	43.0%	34.0%	28.0%
NIGHTS	356	199	171	875	41.0%	23.0%	20.0%	NIGHTS	282	140	126	534	53.0%	26.0%	24.0%
24-HOUR PERIOD	344	216	167	875	39.0%	25.0%	19.0%	24-HOUR PERIOD	239	139	112	534	45.0%	26.0%	21.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	227	181	150	535	42.0%	34.0%	28.0%	DAYS	215	159	131	624	34.0%	25.0%	21.0%
NIGHTS	282	140	126	535	53.0%	26.0%	24.0%	NIGHTS	308	134	111	624	49.0%	21.0%	18.0%
24-HOUR PERIOD	239	139	112	535	45.0%	26.0%	21.0%	24-HOUR PERIOD	218	135	87	624	35.0%	22.0%	14.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	355	293	241	875	41.0%	33.0%	28.0%	DAYS	218	162	134	624	35.0%	26.0%	21.0%
NIGHTS	356	199	171	875	41.0%	23.0%	20.0%	NIGHTS	316	137	113	624	51.0%	22.0%	18.0%
24-HOUR PERIOD	344	216	167	875	39.0%	25.0%	19.0%	24-HOUR PERIOD	221	138	92	624	35.0%	22.0%	15.0%
Great Island Camps								Sunset Beach							
DAYS	227	181	150	535	42.0%	34.0%	28.0%	DAYS	220	165	134	624	35.0%	26.0%	21.0%
NIGHTS	282	140	126	535	53.0%	26.0%	24.0%	NIGHTS	320	139	112	624	51.0%	22.0%	18.0%
24-HOUR PERIOD	239	139	112	535	45.0%	26.0%	21.0%	24-HOUR PERIOD	225	136	94	624	36.0%	22.0%	15.0%
Long Point Camps								Total							
DAYS	227	181	150	535	42.0%	34.0%	28.0%	DAYS	4,847	3,912	3,146	12,261	39.5%	31.9%	25.7%
NIGHTS	282	140	126	535	53.0%	26.0%	24.0%	NIGHTS	5,535	2,818	2,419	12,261	45.1%	23.0%	19.7%
24-HOUR PERIOD	239	139	112	535	45.0%	26.0%	21.0%	24-HOUR	4,812	2,951	2,248	12,261	39.2%	24.1%	18.3%
Cape Point								Average							
DAYS	227	181	150	535	42.0%	34.0%	28.0%	DAYS	39.6%	31.6%	25.7%	Standard Deviation			
NIGHTS	282	140	126	535	53.0%	26.0%	24.0%	NIGHTS	46.0%	23.2%	20.3%	DAYS	2.8%	3.4%	2.7%
24-HOUR PERIOD	239	139	112	535	45.0%	26.0%	21.0%	24-HOUR	39.4%	24.2%	18.4%	NIGHTS	6.0%	1.9%	2.4%
												24-HOUR	3.8%	1.5%	2.4%

Table A-6 Visibility to 15 NM - Winter

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	200	163	128	763	26.0%	21.0%	17.0%	DAYS	200	164	129	763	26.0%	21.0%	17.0%
NIGHTS	195	94	82	763	26.0%	12.0%	11.0%	NIGHTS	195	94	82	763	26.0%	12.0%	11.0%
24-HOUR PERIOD	187	122	86	763	25.0%	16.0%	11.0%	24-HOUR PERIOD	187	123	86	763	25.0%	16.0%	11.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	199	163	128	763	26.0%	21.0%	17.0%	DAYS	200	164	129	763	26.0%	21.0%	17.0%
NIGHTS	195	94	82	763	26.0%	12.0%	11.0%	NIGHTS	195	95	83	763	26.0%	12.0%	11.0%
24-HOUR PERIOD	187	122	86	763	25.0%	16.0%	11.0%	24-HOUR PERIOD	187	123	87	763	25.0%	16.0%	11.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	199	163	128	763	26.0%	21.0%	17.0%	DAYS	200	164	129	763	26.0%	21.0%	17.0%
NIGHTS	195	94	82	763	26.0%	12.0%	11.0%	NIGHTS	195	95	82	763	26.0%	12.0%	11.0%
24-HOUR PERIOD	186	122	86	763	24.0%	16.0%	11.0%	24-HOUR PERIOD	187	123	87	763	25.0%	16.0%	11.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	199	163	128	763	26.0%	21.0%	17.0%	DAYS	165	125	103	624	26.0%	20.0%	17.0%
NIGHTS	195	94	82	763	26.0%	12.0%	11.0%	NIGHTS	218	82	62	624	35.0%	13.0%	10.0%
24-HOUR PERIOD	186	122	86	763	24.0%	16.0%	11.0%	24-HOUR PERIOD	158	98	66	624	25.0%	16.0%	11.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	233	192	157	875	27.0%	22.0%	18.0%	DAYS	158	127	102	534	30.0%	24.0%	19.0%
NIGHTS	234	117	100	875	27.0%	13.0%	11.0%	NIGHTS	187	85	69	534	35.0%	16.0%	13.0%
24-HOUR PERIOD	216	147	108	875	25.0%	17.0%	12.0%	24-HOUR PERIOD	149	95	75	534	28.0%	18.0%	14.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	158	127	102	535	30.0%	24.0%	19.0%	DAYS	166	124	103	624	27.0%	20.0%	17.0%
NIGHTS	187	85	69	535	35.0%	16.0%	13.0%	NIGHTS	218	82	62	624	35.0%	13.0%	10.0%
24-HOUR PERIOD	149	95	75	535	28.0%	18.0%	14.0%	24-HOUR PERIOD	159	97	66	624	25.0%	16.0%	11.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	233	192	157	875	27.0%	22.0%	18.0%	DAYS	160	123	101	624	26.0%	20.0%	16.0%
NIGHTS	234	117	100	875	27.0%	13.0%	11.0%	NIGHTS	219	81	61	624	35.0%	13.0%	10.0%
24-HOUR PERIOD	216	147	108	875	25.0%	17.0%	12.0%	24-HOUR PERIOD	155	98	65	624	25.0%	16.0%	10.0%
Great Island Camps								Sunset Beach							
DAYS	158	127	102	535	30.0%	24.0%	19.0%	DAYS	158	123	100	624	25.0%	20.0%	16.0%
NIGHTS	187	85	69	535	35.0%	16.0%	13.0%	NIGHTS	212	78	61	624	34.0%	13.0%	10.0%
24-HOUR PERIOD	149	95	75	535	28.0%	18.0%	14.0%	24-HOUR PERIOD	154	97	64	624	25.0%	16.0%	10.0%
Long Point Camps								Total							
DAYS	158	127	102	535	30.0%	24.0%	19.0%	DAYS	3,302	2,658	2,130	12,261	26.9%	21.7%	17.4%
NIGHTS	187	85	69	535	35.0%	16.0%	13.0%	NIGHTS	3,635	1,642	1,366	12,261	29.6%	13.4%	11.1%
24-HOUR PERIOD	149	95	75	535	28.0%	18.0%	14.0%	24-HOUR	3,110	2,016	1,456	12,261	25.4%	16.4%	11.9%
Cape Point								Average							
DAYS	158	127	102	535	30.0%	24.0%	19.0%	DAYS	27.2%	21.7%	17.6%	DAYS	1.8%	1.6%	1.0%
NIGHTS	187	85	69	535	35.0%	16.0%	13.0%	NIGHTS	30.6%	13.4%	11.3%	NIGHTS	4.5%	1.7%	1.1%
24-HOUR PERIOD	149	95	75	535	28.0%	18.0%	14.0%	24-HOUR	25.7%	16.7%	11.8%	24-HOUR	1.5%	0.9%	1.5%

Table A-7 Visibility to 20 NM - Winter

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	163	129	98	763	21.0%	17.0%	13.0%	DAYS	163	129	98	763	21.0%	17.0%	13.0%
NIGHTS	150	68	56	763	20.0%	9.0%	7.0%	NIGHTS	150	68	56	763	20.0%	9.0%	7.0%
24-HOUR PERIOD	144	93	64	763	19.0%	12.0%	8.0%	24-HOUR PERIOD	144	93	64	763	19.0%	12.0%	8.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	163	129	98	763	21.0%	17.0%	13.0%	DAYS	163	129	98	763	21.0%	17.0%	13.0%
NIGHTS	150	68	56	763	20.0%	9.0%	7.0%	NIGHTS	150	68	56	763	20.0%	9.0%	7.0%
24-HOUR PERIOD	144	93	64	763	19.0%	12.0%	8.0%	24-HOUR PERIOD	145	93	64	763	19.0%	12.0%	8.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	163	129	98	763	21.0%	17.0%	13.0%	DAYS	163	129	98	763	21.0%	17.0%	13.0%
NIGHTS	150	68	56	763	20.0%	9.0%	7.0%	NIGHTS	150	68	56	763	20.0%	9.0%	7.0%
24-HOUR PERIOD	144	93	64	763	19.0%	12.0%	8.0%	24-HOUR PERIOD	144	93	64	763	19.0%	12.0%	8.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	163	129	98	763	21.0%	17.0%	13.0%	DAYS	138	104	86	624	22.0%	17.0%	14.0%
NIGHTS	150	68	56	763	20.0%	9.0%	7.0%	NIGHTS	164	60	51	624	26.0%	10.0%	8.0%
24-HOUR PERIOD	144	93	64	763	19.0%	12.0%	8.0%	24-HOUR PERIOD	126	80	53	624	20.0%	13.0%	8.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	191	151	118	875	22.0%	17.0%	13.0%	DAYS	130	108	83	534	24.0%	20.0%	16.0%
NIGHTS	179	85	71	875	20.0%	10.0%	8.0%	NIGHTS	135	60	53	534	25.0%	11.0%	10.0%
24-HOUR PERIOD	172	109	80	875	20.0%	12.0%	9.0%	24-HOUR PERIOD	113	76	56	534	21.0%	14.0%	10.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	130	108	83	535	24.0%	20.0%	16.0%	DAYS	139	105	87	624	22.0%	17.0%	14.0%
NIGHTS	135	60	53	535	25.0%	11.0%	10.0%	NIGHTS	165	60	51	624	26.0%	10.0%	8.0%
24-HOUR PERIOD	113	76	56	535	21.0%	14.0%	10.0%	24-HOUR PERIOD	129	81	53	624	21.0%	13.0%	8.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	191	151	118	875	22.0%	17.0%	13.0%	DAYS	135	106	85	624	22.0%	17.0%	14.0%
NIGHTS	179	85	71	875	20.0%	10.0%	8.0%	NIGHTS	160	56	48	624	26.0%	9.0%	8.0%
24-HOUR PERIOD	172	109	80	875	20.0%	12.0%	9.0%	24-HOUR PERIOD	124	77	51	624	20.0%	12.0%	8.0%
Great Island Camps								Sunset Beach							
DAYS	130	108	83	535	24.0%	20.0%	16.0%	DAYS	133	102	85	624	21.0%	16.0%	14.0%
NIGHTS	135	60	53	535	25.0%	11.0%	10.0%	NIGHTS	156	57	48	624	25.0%	9.0%	8.0%
24-HOUR PERIOD	113	76	56	535	21.0%	14.0%	10.0%	24-HOUR PERIOD	125	78	51	624	20.0%	13.0%	8.0%
Long Point Camps								Total							
DAYS	130	108	83	535	24.0%	20.0%	16.0%	DAYS	2,718	2,162	1,680	12,261	22.2%	17.6%	13.7%
NIGHTS	135	60	53	535	25.0%	11.0%	10.0%	NIGHTS	2,728	1,179	997	12,261	22.2%	9.6%	8.1%
24-HOUR PERIOD	113	76	56	535	21.0%	14.0%	10.0%	24-HOUR	2,422	1,565	1,096	12,261	19.8%	12.8%	8.9%
Cape Point								Average							
DAYS	130	108	83	535	24.0%	20.0%	16.0%	DAYS	22.1%	17.8%	14.1%	DAYS	1.3%	1.4%	1.3%
NIGHTS	135	60	53	535	25.0%	11.0%	10.0%	NIGHTS	22.7%	9.8%	8.2%	NIGHTS	2.8%	0.9%	1.2%
24-HOUR PERIOD	113	76	56	535	21.0%	14.0%	10.0%	24-HOUR	19.9%	12.7%	8.7%	24-HOUR	0.9%	0.9%	0.9%

Table A-8 Visibility to 10 NM - Spring

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	249	197	156	811	31.0%	24.0%	19.0%	DAYS	249	197	156	811	31.0%	24.0%	19.0%
NIGHTS	263	121	106	811	32.0%	15.0%	13.0%	NIGHTS	263	121	106	811	32.0%	15.0%	13.0%
24-HOUR PERIOD	252	134	97	811	31.0%	17.0%	12.0%	24-HOUR PERIOD	252	134	97	811	31.0%	17.0%	12.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	250	198	157	811	31.0%	24.0%	19.0%	DAYS	250	198	157	811	31.0%	24.0%	19.0%
NIGHTS	264	121	106	811	33.0%	15.0%	13.0%	NIGHTS	264	121	106	811	33.0%	15.0%	13.0%
24-HOUR PERIOD	253	134	97	811	31.0%	17.0%	12.0%	24-HOUR PERIOD	253	134	97	811	31.0%	17.0%	12.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	250	198	157	811	31.0%	24.0%	19.0%	DAYS	250	198	157	811	31.0%	24.0%	19.0%
NIGHTS	264	121	106	811	33.0%	15.0%	13.0%	NIGHTS	264	121	106	811	33.0%	15.0%	13.0%
24-HOUR PERIOD	253	134	97	811	31.0%	17.0%	12.0%	24-HOUR PERIOD	253	134	97	811	31.0%	17.0%	12.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	250	198	157	811	31.0%	24.0%	19.0%	DAYS	187	136	111	633	30.0%	21.0%	18.0%
NIGHTS	264	121	106	811	33.0%	15.0%	13.0%	NIGHTS	324	147	124	633	51.0%	23.0%	20.0%
24-HOUR PERIOD	253	134	97	811	31.0%	17.0%	12.0%	24-HOUR PERIOD	220	108	79	633	35.0%	17.0%	12.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	271	206	171	874	31.0%	24.0%	20.0%	DAYS	206	148	128	508	41.0%	29.0%	25.0%
NIGHTS	287	138	115	874	33.0%	16.0%	13.0%	NIGHTS	263	148	132	508	52.0%	29.0%	26.0%
24-HOUR PERIOD	278	145	103	874	32.0%	17.0%	12.0%	24-HOUR PERIOD	223	122	97	508	44.0%	24.0%	19.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	206	148	129	508	41.0%	29.0%	25.0%	DAYS	182	134	109	633	29.0%	21.0%	17.0%
NIGHTS	263	148	132	508	52.0%	29.0%	26.0%	NIGHTS	317	144	119	633	50.0%	23.0%	19.0%
24-HOUR PERIOD	223	122	97	508	44.0%	24.0%	19.0%	24-HOUR PERIOD	216	107	76	633	34.0%	17.0%	12.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	270	205	170	874	31.0%	23.0%	19.0%	DAYS	191	147	116	633	30.0%	23.0%	18.0%
NIGHTS	286	138	115	874	33.0%	16.0%	13.0%	NIGHTS	336	153	124	633	53.0%	24.0%	20.0%
24-HOUR PERIOD	277	145	103	874	32.0%	17.0%	12.0%	24-HOUR PERIOD	231	111	84	633	36.0%	18.0%	13.0%
Great Island Camps								Sunset Beach							
DAYS	206	148	129	508	41.0%	29.0%	25.0%	DAYS	191	148	119	633	30.0%	23.0%	19.0%
NIGHTS	263	148	132	508	52.0%	29.0%	26.0%	NIGHTS	349	159	125	633	55.0%	25.0%	20.0%
24-HOUR PERIOD	223	122	97	508	44.0%	24.0%	19.0%	24-HOUR PERIOD	238	116	85	633	38.0%	18.0%	13.0%
Long Point Camps								Total							
DAYS	205	147	128	508	40.0%	29.0%	25.0%	DAYS	4,068	3,098	2,535	12,497	32.6%	24.8%	20.3%
NIGHTS	263	148	132	508	52.0%	29.0%	26.0%	NIGHTS	5,060	2,466	2,124	12,497	40.5%	19.7%	17.0%
24-HOUR PERIOD	222	122	97	508	44.0%	24.0%	19.0%	24-HOUR	4,342	2,280	1,694	12,497	34.7%	18.2%	13.6%
Cape Point								Average							
DAYS	205	147	128	508	40.0%	29.0%	25.0%	DAYS	33.4%	24.9%	20.5%	Standard Deviation	4.6%	2.8%	2.9%
NIGHTS	263	148	132	508	52.0%	29.0%	26.0%	NIGHTS	42.4%	20.9%	18.1%	NIGHTS	10.0%	6.2%	5.7%
24-HOUR PERIOD	222	122	97	508	44.0%	24.0%	19.0%	24-HOUR	35.8%	19.1%	14.1%	24-HOUR	5.6%	3.2%	3.2%

Table A-9 Visibility to 15 NM - Spring

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	157	113	90	811	19.0%	14.0%	11.0%	DAYS	157	113	90	811	19.0%	14.0%	11.0%
NIGHTS	138	56	52	811	17.0%	7.0%	6.0%	NIGHTS	138	56	52	811	17.0%	7.0%	6.0%
24-HOUR PERIOD	133	72	52	811	16.0%	9.0%	6.0%	24-HOUR PERIOD	133	72	52	811	16.0%	9.0%	6.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	157	113	90	811	19.0%	14.0%	11.0%	DAYS	157	113	90	811	19.0%	14.0%	11.0%
NIGHTS	138	56	52	811	17.0%	7.0%	6.0%	NIGHTS	139	56	52	811	17.0%	7.0%	6.0%
24-HOUR PERIOD	133	72	52	811	16.0%	9.0%	6.0%	24-HOUR PERIOD	133	72	52	811	16.0%	9.0%	6.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	157	113	90	811	19.0%	14.0%	11.0%	DAYS	157	113	90	811	19.0%	14.0%	11.0%
NIGHTS	138	56	52	811	17.0%	7.0%	6.0%	NIGHTS	139	56	52	811	17.0%	7.0%	6.0%
24-HOUR PERIOD	133	72	52	811	16.0%	9.0%	6.0%	24-HOUR PERIOD	133	72	52	811	16.0%	9.0%	6.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	157	113	90	811	19.0%	14.0%	11.0%	DAYS	125	92	71	633	20.0%	15.0%	11.0%
NIGHTS	138	56	52	811	17.0%	7.0%	6.0%	NIGHTS	181	58	48	633	29.0%	9.0%	8.0%
24-HOUR PERIOD	133	72	52	811	16.0%	9.0%	6.0%	24-HOUR PERIOD	121	65	42	633	19.0%	10.0%	7.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	169	119	97	874	19.0%	14.0%	11.0%	DAYS	126	101	85	508	25.0%	20.0%	17.0%
NIGHTS	152	61	56	874	17.0%	7.0%	6.0%	NIGHTS	160	77	69	508	31.0%	15.0%	14.0%
24-HOUR PERIOD	145	77	54	874	17.0%	9.0%	6.0%	24-HOUR PERIOD	123	79	61	508	24.0%	16.0%	12.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	126	101	85	508	25.0%	20.0%	17.0%	DAYS	125	90	71	633	20.0%	14.0%	11.0%
NIGHTS	160	77	69	508	31.0%	15.0%	14.0%	NIGHTS	179	60	49	633	28.0%	9.0%	8.0%
24-HOUR PERIOD	123	79	61	508	24.0%	16.0%	12.0%	24-HOUR PERIOD	120	65	42	633	19.0%	10.0%	7.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	169	119	97	874	19.0%	14.0%	11.0%	DAYS	127	91	70	633	20.0%	14.0%	11.0%
NIGHTS	152	61	56	874	17.0%	7.0%	6.0%	NIGHTS	182	63	50	633	29.0%	10.0%	8.0%
24-HOUR PERIOD	145	77	54	874	17.0%	9.0%	6.0%	24-HOUR PERIOD	124	65	42	633	20.0%	10.0%	7.0%
Great Island Camps								Sunset Beach							
DAYS	126	101	85	508	25.0%	20.0%	17.0%	DAYS	128	93	70	633	20.0%	15.0%	11.0%
NIGHTS	160	77	69	508	31.0%	15.0%	14.0%	NIGHTS	188	65	53	633	30.0%	10.0%	8.0%
24-HOUR PERIOD	123	79	61	508	24.0%	16.0%	12.0%	24-HOUR PERIOD	126	66	45	633	20.0%	10.0%	7.0%
Long Point Camps								Total							
DAYS	126	101	85	508	25.0%	20.0%	17.0%	DAYS	2,572	1,900	1,531	12,497	20.6%	15.2%	12.3%
NIGHTS	160	77	69	508	31.0%	15.0%	14.0%	NIGHTS	2,802	1,145	1,021	12,497	22.4%	9.2%	8.2%
24-HOUR PERIOD	123	79	61	508	24.0%	16.0%	12.0%	24-HOUR	2,327	1,314	948	12,497	18.6%	10.5%	7.6%
Cape Point								Average							
DAYS	126	101	85	508	25.0%	20.0%	17.0%	DAYS	20.9%	15.8%	12.7%	Standard Deviation	2.7%	2.7%	2.8%
NIGHTS	160	77	69	508	31.0%	15.0%	14.0%	NIGHTS	23.6%	9.8%	8.7%	NIGHTS	6.8%	3.5%	3.5%
24-HOUR PERIOD	123	79	61	508	24.0%	16.0%	12.0%	24-HOUR	19.1%	11.2%	7.9%	24-HOUR	3.4%	3.1%	2.7%

Table A-10 Visibility to 20 NM - Spring

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	105	71	58	811	13.0%	9.0%	7.0%	DAYS	105	71	58	811	13.0%	9.0%	7.0%
NIGHTS	94	41	37	811	12.0%	5.0%	5.0%	NIGHTS	94	41	37	811	12.0%	5.0%	5.0%
24-HOUR PERIOD	84	53	37	811	10.0%	7.0%	5.0%	24-HOUR PERIOD	84	53	37	811	10.0%	7.0%	5.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	105	71	58	811	13.0%	9.0%	7.0%	DAYS	105	71	58	811	13.0%	9.0%	7.0%
NIGHTS	94	41	37	811	12.0%	5.0%	5.0%	NIGHTS	94	41	37	811	12.0%	5.0%	5.0%
24-HOUR PERIOD	84	53	37	811	10.0%	7.0%	5.0%	24-HOUR PERIOD	84	53	37	811	10.0%	7.0%	5.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	105	71	58	811	13.0%	9.0%	7.0%	DAYS	105	71	58	811	13.0%	9.0%	7.0%
NIGHTS	94	41	37	811	12.0%	5.0%	5.0%	NIGHTS	94	41	37	811	12.0%	5.0%	5.0%
24-HOUR PERIOD	84	53	37	811	10.0%	7.0%	5.0%	24-HOUR PERIOD	84	53	37	811	10.0%	7.0%	5.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	105	71	58	811	13.0%	9.0%	7.0%	DAYS	97	65	48	633	15.0%	10.0%	8.0%
NIGHTS	94	41	37	811	12.0%	5.0%	5.0%	NIGHTS	116	37	31	633	18.0%	6.0%	5.0%
24-HOUR PERIOD	84	53	37	811	10.0%	7.0%	5.0%	24-HOUR PERIOD	88	43	29	633	14.0%	7.0%	5.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	120	83	64	874	14.0%	9.0%	7.0%	DAYS	92	81	64	508	18.0%	16.0%	13.0%
NIGHTS	108	46	41	874	12.0%	5.0%	5.0%	NIGHTS	107	54	45	508	21.0%	11.0%	9.0%
24-HOUR PERIOD	96	58	41	874	11.0%	7.0%	5.0%	24-HOUR PERIOD	87	60	46	508	17.0%	12.0%	9.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	92	81	64	508	18.0%	16.0%	13.0%	DAYS	96	67	49	633	15.0%	11.0%	8.0%
NIGHTS	107	54	45	508	21.0%	11.0%	9.0%	NIGHTS	117	38	32	633	18.0%	6.0%	5.0%
24-HOUR PERIOD	87	60	46	508	17.0%	12.0%	9.0%	24-HOUR PERIOD	88	44	30	633	14.0%	7.0%	5.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	120	83	64	874	14.0%	9.0%	7.0%	DAYS	90	67	49	633	14.0%	11.0%	8.0%
NIGHTS	108	46	41	874	12.0%	5.0%	5.0%	NIGHTS	116	33	26	633	18.0%	5.0%	4.0%
24-HOUR PERIOD	96	58	41	874	11.0%	7.0%	5.0%	24-HOUR PERIOD	88	44	26	633	14.0%	7.0%	4.0%
Great Island Camps								Sunset Beach							
DAYS	92	81	64	508	18.0%	16.0%	13.0%	DAYS	90	68	53	633	14.0%	11.0%	8.0%
NIGHTS	107	54	45	508	21.0%	11.0%	9.0%	NIGHTS	112	31	23	633	18.0%	5.0%	4.0%
24-HOUR PERIOD	87	60	46	508	17.0%	12.0%	9.0%	24-HOUR PERIOD	84	42	26	633	13.0%	7.0%	4.0%
Long Point Camps								Total							
DAYS	92	81	64	508	18.0%	16.0%	13.0%	DAYS	1,808	1,335	1,053	12,497	14.5%	10.7%	8.4%
NIGHTS	107	54	45	508	21.0%	11.0%	9.0%	NIGHTS	1,870	788	678	12,497	15.0%	6.3%	5.4%
24-HOUR PERIOD	87	60	46	508	17.0%	12.0%	9.0%	24-HOUR	1,563	960	682	12,497	12.5%	7.7%	5.5%
Cape Point								Average							
DAYS	92	81	64	508	18.0%	16.0%	13.0%	DAYS	14.8%	11.3%	8.9%	Standard Deviation	2.1%	3.1%	2.7%
NIGHTS	107	54	45	508	21.0%	11.0%	9.0%	NIGHTS	15.8%	6.8%	6.0%	NIGHTS	4.1%	2.7%	1.9%
24-HOUR PERIOD	87	60	46	508	17.0%	12.0%	9.0%	24-HOUR	12.9%	8.4%	6.0%	24-HOUR	3.0%	2.3%	1.9%

Table A-11 Visibility to 10 NM - Summer

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	194	150	129	799	24.0%	19.0%	16.0%	DAYS	193	149	129	799	24.0%	19.0%	16.0%
NIGHTS	242	115	97	799	30.0%	14.0%	12.0%	NIGHTS	243	115	97	799	30.0%	14.0%	12.0%
24-HOUR PERIOD	197	121	93	799	25.0%	15.0%	12.0%	24-HOUR PERIOD	196	121	93	799	25.0%	15.0%	12.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	193	149	129	799	24.0%	19.0%	16.0%	DAYS	193	149	129	799	24.0%	19.0%	16.0%
NIGHTS	243	115	97	799	30.0%	14.0%	12.0%	NIGHTS	243	115	97	799	30.0%	14.0%	12.0%
24-HOUR PERIOD	196	121	93	799	25.0%	15.0%	12.0%	24-HOUR PERIOD	196	121	93	799	25.0%	15.0%	12.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	193	149	129	799	24.0%	19.0%	16.0%	DAYS	193	149	129	799	24.0%	19.0%	16.0%
NIGHTS	243	115	97	799	30.0%	14.0%	12.0%	NIGHTS	243	115	97	799	30.0%	14.0%	12.0%
24-HOUR PERIOD	196	121	93	799	25.0%	15.0%	12.0%	24-HOUR PERIOD	196	121	93	799	25.0%	15.0%	12.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	193	149	129	799	24.0%	19.0%	16.0%	DAYS	166	116	84	616	27.0%	19.0%	14.0%
NIGHTS	243	115	97	799	30.0%	14.0%	12.0%	NIGHTS	239	102	82	616	39.0%	17.0%	13.0%
24-HOUR PERIOD	196	121	93	799	25.0%	15.0%	12.0%	24-HOUR PERIOD	174	94	58	616	28.0%	15.0%	9.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	212	160	131	878	24.0%	18.0%	15.0%	DAYS	183	142	119	549	33.0%	26.0%	22.0%
NIGHTS	257	129	110	878	29.0%	15.0%	13.0%	NIGHTS	252	140	117	549	46.0%	26.0%	21.0%
24-HOUR PERIOD	214	127	96	878	24.0%	14.0%	11.0%	24-HOUR PERIOD	203	113	91	549	37.0%	21.0%	17.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	183	142	119	549	33.0%	26.0%	22.0%	DAYS	164	114	80	616	27.0%	19.0%	13.0%
NIGHTS	253	140	117	549	46.0%	26.0%	21.0%	NIGHTS	232	100	81	616	38.0%	16.0%	13.0%
24-HOUR PERIOD	203	113	91	549	37.0%	21.0%	17.0%	24-HOUR PERIOD	171	89	57	616	28.0%	14.0%	9.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	212	160	131	878	24.0%	18.0%	15.0%	DAYS	174	119	85	616	28.0%	19.0%	14.0%
NIGHTS	257	129	110	878	29.0%	15.0%	13.0%	NIGHTS	253	108	89	616	41.0%	18.0%	14.0%
24-HOUR PERIOD	214	127	96	878	24.0%	14.0%	11.0%	24-HOUR PERIOD	181	93	61	616	29.0%	15.0%	10.0%
Great Island Camps								Sunset Beach							
DAYS	183	142	119	549	33.0%	26.0%	22.0%	DAYS	177	119	85	616	29.0%	19.0%	14.0%
NIGHTS	253	140	117	549	46.0%	26.0%	21.0%	NIGHTS	261	112	91	616	42.0%	18.0%	15.0%
24-HOUR PERIOD	203	113	91	549	37.0%	21.0%	17.0%	24-HOUR PERIOD	185	94	60	616	30.0%	15.0%	10.0%
Long Point Camps								Total							
DAYS	183	142	119	549	33.0%	26.0%	22.0%	DAYS	3,372	2,542	2,094	12,558	26.9%	20.2%	16.7%
NIGHTS	253	140	117	549	46.0%	26.0%	21.0%	NIGHTS	4,463	2,185	1,827	12,558	35.5%	17.4%	14.5%
24-HOUR PERIOD	203	113	91	549	37.0%	21.0%	17.0%	24-HOUR	3,527	2,036	1,534	12,558	28.1%	16.2%	12.2%
Cape Point								Average							
DAYS	183	142	119	549	33.0%	26.0%	22.0%	DAYS	27.3%	20.8%	17.1%	Standard Deviation	3.9%	3.3%	3.3%
NIGHTS	253	140	117	549	46.0%	26.0%	21.0%	NIGHTS	36.6%	18.2%	15.0%	NIGHTS	7.4%	5.2%	3.9%
24-HOUR PERIOD	203	113	91	549	37.0%	21.0%	17.0%	24-HOUR	29.1%	16.5%	12.7%	24-HOUR	5.3%	2.9%	2.9%

Table A-12 Visibility to 15 NM - Summer

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	121	101	87	799	15.0%	13.0%	11.0%	DAYS	121	101	87	799	15.0%	13.0%	11.0%
NIGHTS	138	61	50	799	17.0%	8.0%	6.0%	NIGHTS	138	61	50	799	17.0%	8.0%	6.0%
24-HOUR PERIOD	115	76	52	799	14.0%	10.0%	7.0%	24-HOUR PERIOD	115	76	52	799	14.0%	10.0%	7.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	121	101	87	799	15.0%	13.0%	11.0%	DAYS	121	101	87	799	15.0%	13.0%	11.0%
NIGHTS	138	61	50	799	17.0%	8.0%	6.0%	NIGHTS	138	61	50	799	17.0%	8.0%	6.0%
24-HOUR PERIOD	115	76	52	799	14.0%	10.0%	7.0%	24-HOUR PERIOD	115	76	52	799	14.0%	10.0%	7.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	121	101	87	799	15.0%	13.0%	11.0%	DAYS	121	101	87	799	15.0%	13.0%	11.0%
NIGHTS	138	61	50	799	17.0%	8.0%	6.0%	NIGHTS	138	61	50	799	17.0%	8.0%	6.0%
24-HOUR PERIOD	115	76	52	799	14.0%	10.0%	7.0%	24-HOUR PERIOD	115	76	52	799	14.0%	10.0%	7.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	121	101	87	799	15.0%	13.0%	11.0%	DAYS	101	69	55	616	16.0%	11.0%	9.0%
NIGHTS	138	61	50	799	17.0%	8.0%	6.0%	NIGHTS	115	44	40	616	19.0%	7.0%	6.0%
24-HOUR PERIOD	115	76	52	799	14.0%	10.0%	7.0%	24-HOUR PERIOD	91	54	32	616	15.0%	9.0%	5.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	131	104	85	878	15.0%	12.0%	10.0%	DAYS	115	86	68	549	21.0%	16.0%	12.0%
NIGHTS	147	68	56	878	17.0%	8.0%	6.0%	NIGHTS	135	60	50	549	25.0%	11.0%	9.0%
24-HOUR PERIOD	123	78	57	878	14.0%	9.0%	6.0%	24-HOUR PERIOD	104	65	47	549	19.0%	12.0%	9.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	115	86	68	549	21.0%	16.0%	12.0%	DAYS	101	69	54	616	16.0%	11.0%	9.0%
NIGHTS	135	60	50	549	25.0%	11.0%	9.0%	NIGHTS	115	44	40	616	19.0%	7.0%	6.0%
24-HOUR PERIOD	104	65	47	549	19.0%	12.0%	9.0%	24-HOUR PERIOD	91	53	32	616	15.0%	9.0%	5.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	131	104	85	878	15.0%	12.0%	10.0%	DAYS	101	69	55	616	16.0%	11.0%	9.0%
NIGHTS	147	68	56	878	17.0%	8.0%	6.0%	NIGHTS	122	46	41	616	20.0%	7.0%	7.0%
24-HOUR PERIOD	123	78	57	878	14.0%	9.0%	6.0%	24-HOUR PERIOD	97	52	33	616	16.0%	8.0%	5.0%
Great Island Camps								Sunset Beach							
DAYS	115	86	68	549	21.0%	16.0%	12.0%	DAYS	100	71	52	616	16.0%	12.0%	8.0%
NIGHTS	135	60	50	549	25.0%	11.0%	9.0%	NIGHTS	122	48	42	616	20.0%	8.0%	7.0%
24-HOUR PERIOD	104	65	47	549	19.0%	12.0%	9.0%	24-HOUR PERIOD	96	51	36	616	16.0%	8.0%	6.0%
Long Point Camps								Total							
DAYS	115	86	68	549	21.0%	16.0%	12.0%	DAYS	2,087	1,623	1,335	12,558	16.6%	12.9%	10.6%
NIGHTS	135	60	50	549	25.0%	11.0%	9.0%	NIGHTS	2,409	1,045	875	12,558	19.2%	8.3%	7.0%
24-HOUR PERIOD	104	65	47	549	19.0%	12.0%	9.0%	24-HOUR	1,946	1,223	846	12,558	15.5%	9.7%	6.7%
Cape Point								Average							
DAYS	115	86	68	549	21.0%	16.0%	12.0%	DAYS	16.9%	13.3%	10.7%	Standard Deviation	2.7%	1.8%	1.2%
NIGHTS	135	60	50	549	25.0%	11.0%	9.0%	NIGHTS	19.8%	8.7%	6.9%	NIGHTS	3.5%	1.5%	1.3%
24-HOUR PERIOD	104	65	47	549	19.0%	12.0%	9.0%	24-HOUR	15.7%	10.1%	7.1%	24-HOUR	2.2%	1.4%	1.4%

Table A-13 Visibility to 20 NM - Summer

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	97	73	60	799	12.0%	9.0%	8.0%	DAYS	97	73	60	799	12.0%	9.0%	8.0%
NIGHTS	96	40	39	799	12.0%	5.0%	5.0%	NIGHTS	96	40	39	799	12.0%	5.0%	5.0%
24-HOUR PERIOD	84	52	39	799	11.0%	7.0%	5.0%	24-HOUR PERIOD	84	52	39	799	11.0%	7.0%	5.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	97	73	60	799	12.0%	9.0%	8.0%	DAYS	97	73	60	799	12.0%	9.0%	8.0%
NIGHTS	96	40	39	799	12.0%	5.0%	5.0%	NIGHTS	96	40	39	799	12.0%	5.0%	5.0%
24-HOUR PERIOD	84	52	39	799	11.0%	7.0%	5.0%	24-HOUR PERIOD	84	52	39	799	11.0%	7.0%	5.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	97	73	60	799	12.0%	9.0%	8.0%	DAYS	97	73	60	799	12.0%	9.0%	8.0%
NIGHTS	96	40	39	799	12.0%	5.0%	5.0%	NIGHTS	96	40	39	799	12.0%	5.0%	5.0%
24-HOUR PERIOD	84	52	39	799	11.0%	7.0%	5.0%	24-HOUR PERIOD	84	52	39	799	11.0%	7.0%	5.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	97	73	60	799	12.0%	9.0%	8.0%	DAYS	68	45	36	616	11.0%	7.0%	6.0%
NIGHTS	96	40	39	799	12.0%	5.0%	5.0%	NIGHTS	80	25	24	616	13.0%	4.0%	4.0%
24-HOUR PERIOD	84	52	39	799	11.0%	7.0%	5.0%	24-HOUR PERIOD	60	34	22	616	10.0%	6.0%	4.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	103	76	56	878	12.0%	9.0%	6.0%	DAYS	84	64	42	549	15.0%	12.0%	8.0%
NIGHTS	108	44	40	878	12.0%	5.0%	5.0%	NIGHTS	78	34	29	549	14.0%	6.0%	5.0%
24-HOUR PERIOD	92	55	41	878	10.0%	6.0%	5.0%	24-HOUR PERIOD	77	37	30	549	14.0%	7.0%	5.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	84	64	42	549	15.0%	12.0%	8.0%	DAYS	69	49	36	616	11.0%	8.0%	6.0%
NIGHTS	78	34	29	549	14.0%	6.0%	5.0%	NIGHTS	80	25	24	616	13.0%	4.0%	4.0%
24-HOUR PERIOD	77	37	30	549	14.0%	7.0%	5.0%	24-HOUR PERIOD	60	34	22	616	10.0%	6.0%	4.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	103	76	56	878	12.0%	9.0%	6.0%	DAYS	70	45	35	616	11.0%	7.0%	6.0%
NIGHTS	108	44	40	878	12.0%	5.0%	5.0%	NIGHTS	84	25	23	616	14.0%	4.0%	4.0%
24-HOUR PERIOD	92	55	41	878	10.0%	6.0%	5.0%	24-HOUR PERIOD	62	34	21	616	10.0%	6.0%	3.0%
Great Island Camps								Sunset Beach							
DAYS	84	64	42	549	15.0%	12.0%	8.0%	DAYS	70	49	34	616	11.0%	8.0%	6.0%
NIGHTS	78	34	29	549	14.0%	6.0%	5.0%	NIGHTS	81	24	23	616	13.0%	4.0%	4.0%
24-HOUR PERIOD	77	37	30	549	14.0%	7.0%	5.0%	24-HOUR PERIOD	63	32	21	616	10.0%	5.0%	3.0%
Long Point Camps								Total							
DAYS	84	64	42	549	15.0%	12.0%	8.0%	DAYS	1,582	1,171	883	12,558	12.6%	9.3%	7.0%
NIGHTS	78	34	29	549	14.0%	6.0%	5.0%	NIGHTS	1,603	637	592	12,558	12.8%	5.1%	4.7%
24-HOUR PERIOD	77	37	30	549	14.0%	7.0%	5.0%	24-HOUR	1,402	793	591	12,558	11.2%	6.3%	4.7%
Cape Point								Average							
DAYS	84	64	42	549	15.0%	12.0%	8.0%	DAYS	12.6%	9.5%	7.3%	Standard Deviation	1.6%	1.7%	1.0%
NIGHTS	78	34	29	549	14.0%	6.0%	5.0%	NIGHTS	12.8%	5.1%	4.8%	NIGHTS	0.9%	0.7%	0.4%
24-HOUR PERIOD	77	37	30	549	14.0%	7.0%	5.0%	24-HOUR	11.5%	6.6%	4.7%	24-HOUR	1.7%	0.6%	0.7%

Table A-14 Visibility to 10 NM - Fall

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	341	297	265	812	42.0%	37.0%	33.0%	DAYS	342	298	265	812	42.0%	37.0%	33.0%
NIGHTS	376	216	190	812	46.0%	27.0%	23.0%	NIGHTS	376	216	190	812	46.0%	27.0%	23.0%
24-HOUR PERIOD	344	236	181	812	42.0%	29.0%	22.0%	24-HOUR PERIOD	345	236	181	812	42.0%	29.0%	22.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	341	297	265	812	42.0%	37.0%	33.0%	DAYS	341	297	265	812	42.0%	37.0%	33.0%
NIGHTS	376	216	190	812	46.0%	27.0%	23.0%	NIGHTS	376	216	190	812	46.0%	27.0%	23.0%
24-HOUR PERIOD	344	236	181	812	42.0%	29.0%	22.0%	24-HOUR PERIOD	344	236	181	812	42.0%	29.0%	22.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	341	297	265	812	42.0%	37.0%	33.0%	DAYS	341	297	265	812	42.0%	37.0%	33.0%
NIGHTS	376	216	190	812	46.0%	27.0%	23.0%	NIGHTS	376	216	190	812	46.0%	27.0%	23.0%
24-HOUR PERIOD	344	236	181	812	42.0%	29.0%	22.0%	24-HOUR PERIOD	344	236	181	812	42.0%	29.0%	22.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	341	297	265	812	42.0%	37.0%	33.0%	DAYS	208	144	121	636	33.0%	23.0%	19.0%
NIGHTS	376	216	190	812	46.0%	27.0%	23.0%	NIGHTS	265	104	75	636	42.0%	16.0%	12.0%
24-HOUR PERIOD	344	236	181	812	42.0%	29.0%	22.0%	24-HOUR PERIOD	202	105	72	636	32.0%	17.0%	11.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	369	313	281	876	42.0%	36.0%	32.0%	DAYS	202	161	144	514	39.0%	31.0%	28.0%
NIGHTS	403	235	213	876	46.0%	27.0%	24.0%	NIGHTS	257	139	117	514	50.0%	27.0%	23.0%
24-HOUR PERIOD	369	250	192	876	42.0%	29.0%	22.0%	24-HOUR PERIOD	217	140	107	514	42.0%	27.0%	21.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	202	161	144	514	39.0%	31.0%	28.0%	DAYS	208	142	119	636	33.0%	22.0%	19.0%
NIGHTS	257	139	117	514	50.0%	27.0%	23.0%	NIGHTS	264	103	74	636	42.0%	16.0%	12.0%
24-HOUR PERIOD	217	140	107	514	42.0%	27.0%	21.0%	24-HOUR PERIOD	197	105	71	636	31.0%	17.0%	11.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	370	314	281	876	42.0%	36.0%	32.0%	DAYS	214	149	126	636	34.0%	23.0%	20.0%
NIGHTS	403	235	213	876	46.0%	27.0%	24.0%	NIGHTS	280	107	77	636	44.0%	17.0%	12.0%
24-HOUR PERIOD	370	250	192	876	42.0%	29.0%	22.0%	24-HOUR PERIOD	212	112	75	636	33.0%	18.0%	12.0%
Great Island Camps								Sunset Beach							
DAYS	202	161	144	514	39.0%	31.0%	28.0%	DAYS	221	154	129	636	35.0%	24.0%	20.0%
NIGHTS	257	139	117	514	50.0%	27.0%	23.0%	NIGHTS	286	108	79	636	45.0%	17.0%	12.0%
24-HOUR PERIOD	217	140	107	514	42.0%	27.0%	21.0%	24-HOUR PERIOD	222	114	77	636	35.0%	18.0%	12.0%
Long Point Camps								Total							
DAYS	203	162	144	514	39.0%	32.0%	28.0%	DAYS	4,990	4,103	3,632	12,550	39.8%	32.7%	28.9%
NIGHTS	257	139	117	514	50.0%	27.0%	23.0%	NIGHTS	5,818	3,099	2,646	12,550	46.4%	24.7%	21.1%
24-HOUR PERIOD	218	140	107	514	42.0%	27.0%	21.0%	24-HOUR	5,068	3,288	2,481	12,550	40.4%	26.2%	19.8%
Cape Point								Average							
DAYS	203	162	144	514	39.0%	32.0%	28.0%	DAYS	39.3%	32.2%	28.5%	Standard Deviation			
NIGHTS	257	139	117	514	50.0%	27.0%	23.0%	NIGHTS	46.5%	24.7%	20.7%	DAYS	3.4%	5.6%	5.4%
24-HOUR PERIOD	218	140	107	514	42.0%	27.0%	21.0%	24-HOUR	39.9%	25.9%	19.4%	NIGHTS	2.6%	4.5%	4.8%
												24-HOUR	4.0%	4.7%	4.4%

Table A-15 Visibility to 15 NM - Fall

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	259	222	179	812	32.0%	27.0%	22.0%	DAYS	259	222	179	812	32.0%	27.0%	22.0%
NIGHTS	249	138	127	812	31.0%	17.0%	16.0%	NIGHTS	249	138	127	812	31.0%	17.0%	16.0%
24-HOUR PERIOD	243	159	132	812	30.0%	20.0%	16.0%	24-HOUR PERIOD	243	159	132	812	30.0%	20.0%	16.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	259	222	179	812	32.0%	27.0%	22.0%	DAYS	259	222	179	812	32.0%	27.0%	22.0%
NIGHTS	249	138	127	812	31.0%	17.0%	16.0%	NIGHTS	249	138	127	812	31.0%	17.0%	16.0%
24-HOUR PERIOD	243	159	132	812	30.0%	20.0%	16.0%	24-HOUR PERIOD	243	159	132	812	30.0%	20.0%	16.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	259	222	179	812	32.0%	27.0%	22.0%	DAYS	259	222	179	812	32.0%	27.0%	22.0%
NIGHTS	249	138	127	812	31.0%	17.0%	16.0%	NIGHTS	249	138	127	812	31.0%	17.0%	16.0%
24-HOUR PERIOD	243	159	132	812	30.0%	20.0%	16.0%	24-HOUR PERIOD	243	159	132	812	30.0%	20.0%	16.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	259	222	179	812	32.0%	27.0%	22.0%	DAYS	142	106	88	636	22.0%	17.0%	14.0%
NIGHTS	249	138	127	812	31.0%	17.0%	16.0%	NIGHTS	170	49	40	636	27.0%	8.0%	6.0%
24-HOUR PERIOD	243	159	132	812	30.0%	20.0%	16.0%	24-HOUR PERIOD	132	73	41	636	21.0%	11.0%	6.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	272	232	191	876	31.0%	26.0%	22.0%	DAYS	139	114	95	514	27.0%	22.0%	18.0%
NIGHTS	273	146	136	876	31.0%	17.0%	16.0%	NIGHTS	161	75	64	514	31.0%	15.0%	12.0%
24-HOUR PERIOD	260	172	135	876	30.0%	20.0%	15.0%	24-HOUR PERIOD	140	87	65	514	27.0%	17.0%	13.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	139	114	95	514	27.0%	22.0%	18.0%	DAYS	143	106	88	636	22.0%	17.0%	14.0%
NIGHTS	161	75	64	514	31.0%	15.0%	12.0%	NIGHTS	167	50	39	636	26.0%	8.0%	6.0%
24-HOUR PERIOD	140	87	65	514	27.0%	17.0%	13.0%	24-HOUR PERIOD	131	72	42	636	21.0%	11.0%	7.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	272	232	191	876	31.0%	26.0%	22.0%	DAYS	143	106	88	636	22.0%	17.0%	14.0%
NIGHTS	273	146	136	876	31.0%	17.0%	16.0%	NIGHTS	172	50	39	636	27.0%	8.0%	6.0%
24-HOUR PERIOD	260	172	135	876	30.0%	20.0%	15.0%	24-HOUR PERIOD	129	75	43	636	20.0%	12.0%	7.0%
Great Island Camps								Sunset Beach							
DAYS	139	114	95	514	27.0%	22.0%	18.0%	DAYS	142	101	86	636	22.0%	16.0%	14.0%
NIGHTS	161	75	64	514	31.0%	15.0%	12.0%	NIGHTS	175	51	40	636	28.0%	8.0%	6.0%
24-HOUR PERIOD	140	87	65	514	27.0%	17.0%	13.0%	24-HOUR PERIOD	125	76	42	636	20.0%	12.0%	7.0%
Long Point Camps								Total							
DAYS	139	114	95	514	27.0%	22.0%	18.0%	DAYS	3,622	3,007	2,460	12,550	28.9%	24.0%	19.6%
NIGHTS	161	75	64	514	31.0%	15.0%	12.0%	NIGHTS	3,778	1,833	1,639	12,550	30.1%	14.6%	13.1%
24-HOUR PERIOD	140	87	65	514	27.0%	17.0%	13.0%	24-HOUR PERIOD	3,438	2,188	1,687	12,550	27.4%	17.4%	13.4%
Cape Point								Average							
DAYS	139	114	95	514	27.0%	22.0%	18.0%	DAYS	28.3%	23.2%	19.1%	Standard Deviation	4.0%	4.1%	3.3%
NIGHTS	161	75	64	514	31.0%	15.0%	12.0%	NIGHTS	30.1%	14.4%	12.7%	NIGHTS	1.7%	3.6%	4.1%
24-HOUR PERIOD	140	87	65	514	27.0%	17.0%	13.0%	24-HOUR PERIOD	27.1%	17.3%	13.0%	24-HOUR PERIOD	3.8%	3.4%	3.7%

Table A-16 Visibility to 20 NM - Fall

Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible	Site Name	Days 50% Visible	Days 75% Visible	Days 90% Visible	Total Days	% Days 50% Visible	% Days 75% Visible	% Days 90% Visible
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	207	169	144	812	25.0%	21.0%	18.0%	DAYS	207	169	144	812	25.0%	21.0%	18.0%
NIGHTS	189	101	90	812	23.0%	12.0%	11.0%	NIGHTS	189	101	90	812	23.0%	12.0%	11.0%
24-HOUR PERIOD	192	121	98	812	24.0%	15.0%	12.0%	24-HOUR PERIOD	192	121	98	812	24.0%	15.0%	12.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	207	169	144	812	25.0%	21.0%	18.0%	DAYS	207	169	144	812	25.0%	21.0%	18.0%
NIGHTS	189	101	90	812	23.0%	12.0%	11.0%	NIGHTS	189	101	90	812	23.0%	12.0%	11.0%
24-HOUR PERIOD	192	121	98	812	24.0%	15.0%	12.0%	24-HOUR PERIOD	192	121	98	812	24.0%	15.0%	12.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	207	169	144	812	25.0%	21.0%	18.0%	DAYS	207	169	144	812	25.0%	21.0%	18.0%
NIGHTS	189	101	90	812	23.0%	12.0%	11.0%	NIGHTS	189	101	90	812	23.0%	12.0%	11.0%
24-HOUR PERIOD	192	121	98	812	24.0%	15.0%	12.0%	24-HOUR PERIOD	192	121	98	812	24.0%	15.0%	12.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	207	169	144	812	25.0%	21.0%	18.0%	DAYS	107	71	59	636	17.0%	11.0%	9.0%
NIGHTS	189	101	90	812	23.0%	12.0%	11.0%	NIGHTS	116	39	30	636	18.0%	6.0%	5.0%
24-HOUR PERIOD	192	121	98	812	24.0%	15.0%	12.0%	24-HOUR PERIOD	91	52	34	636	14.0%	8.0%	5.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	221	182	151	876	25.0%	21.0%	17.0%	DAYS	117	97	77	514	23.0%	19.0%	15.0%
NIGHTS	208	108	98	876	24.0%	12.0%	11.0%	NIGHTS	132	57	45	514	26.0%	11.0%	9.0%
24-HOUR PERIOD	203	128	103	876	23.0%	15.0%	12.0%	24-HOUR PERIOD	112	70	51	514	22.0%	14.0%	10.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	117	97	77	514	23.0%	19.0%	15.0%	DAYS	106	72	58	636	17.0%	11.0%	9.0%
NIGHTS	132	57	45	514	26.0%	11.0%	9.0%	NIGHTS	120	39	30	636	19.0%	6.0%	5.0%
24-HOUR PERIOD	112	70	51	514	22.0%	14.0%	10.0%	24-HOUR PERIOD	92	53	34	636	14.0%	8.0%	5.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	221	182	151	876	25.0%	21.0%	17.0%	DAYS	108	75	61	636	17.0%	12.0%	10.0%
NIGHTS	208	108	98	876	24.0%	12.0%	11.0%	NIGHTS	115	38	30	636	18.0%	6.0%	5.0%
24-HOUR PERIOD	203	128	103	876	23.0%	15.0%	12.0%	24-HOUR PERIOD	93	54	35	636	15.0%	8.0%	6.0%
Great Island Camps								Sunset Beach							
DAYS	117	97	77	514	23.0%	19.0%	15.0%	DAYS	105	72	58	636	17.0%	11.0%	9.0%
NIGHTS	132	57	45	514	26.0%	11.0%	9.0%	NIGHTS	116	38	31	636	18.0%	6.0%	5.0%
24-HOUR PERIOD	112	70	51	514	22.0%	14.0%	10.0%	24-HOUR PERIOD	95	54	35	636	15.0%	8.0%	6.0%
Long Point Camps								Total							
DAYS	117	97	77	514	23.0%	19.0%	15.0%	DAYS	2,902	2,322	1,931	12,550	23.1%	18.5%	15.4%
NIGHTS	132	57	45	514	26.0%	11.0%	9.0%	NIGHTS	2,866	1,362	1,172	12,550	22.8%	10.9%	9.3%
24-HOUR PERIOD	112	70	51	514	22.0%	14.0%	10.0%	24-HOUR	2,681	1,666	1,285	12,550	21.4%	13.3%	10.2%
Cape Point								Average							
DAYS	117	97	77	514	23.0%	19.0%	15.0%	DAYS	22.7%	18.3%	15.1%	Standard Deviation			
NIGHTS	132	57	45	514	26.0%	11.0%	9.0%	NIGHTS	22.9%	10.4%	9.1%	DAYS	3.2%	4.0%	3.5%
24-HOUR PERIOD	112	70	51	514	22.0%	14.0%	10.0%	24-HOUR	21.2%	13.2%	10.0%	NIGHTS	2.8%	2.5%	2.4%
												24-HOUR	3.8%	2.9%	2.6%

Table A-17 Days Sunny

Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear		Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear		
Coquina Beach (Bodie Island)								Corolla Lighthouse									
DAYS	2300	1848	1357	3190	72.0%	58.0%	43.0%	DAYS	2301	1848	1357	3190	72.0%	58.0%	43.0%		
NIGHTS	2417	1707	1402	3190	76.0%	54.0%	44.0%	NIGHTS	2418	1708	1403	3190	76.0%	54.0%	44.0%		
24-HOUR	2339	1685	1166	3190	73.0%	53.0%	37.0%	24-HOUR	2340	1686	1166	3190	73.0%	53.0%	37.0%		
Bodie Island Lighthouse								Beach at Duck									
DAYS	2301	1848	1357	3190	72.0%	58.0%	43.0%	DAYS	2301	1848	1357	3190	72.0%	58.0%	43.0%		
NIGHTS	2418	1708	1403	3190	76.0%	54.0%	44.0%	NIGHTS	2418	1708	1403	3190	76.0%	54.0%	44.0%		
24-HOUR	2340	1686	1166	3190	73.0%	53.0%	37.0%	24-HOUR	2340	1686	1166	3190	73.0%	53.0%	37.0%		
Lighthouse Beach (Buxton)								Kitty Hawk									
DAYS	2301	1848	1357	3190	72.0%	58.0%	43.0%	DAYS	2301	1848	1357	3190	72.0%	58.0%	43.0%		
NIGHTS	2418	1708	1403	3190	76.0%	54.0%	44.0%	NIGHTS	2418	1708	1403	3190	76.0%	54.0%	44.0%		
24-HOUR	2340	1686	1166	3190	73.0%	53.0%	37.0%	24-HOUR	2340	1686	1166	3190	73.0%	53.0%	37.0%		
Cape Hatteras Lighthouse								Bald Head Island									
DAYS	2301	1848	1357	3190	72.0%	58.0%	43.0%	DAYS	1692	1314	991	2509	67.0%	52.0%	39.0%		
NIGHTS	2418	1708	1403	3190	76.0%	54.0%	44.0%	NIGHTS	1858	1262	1063	2509	74.0%	50.0%	42.0%		
24-HOUR	2340	1686	1166	3190	73.0%	53.0%	37.0%	24-HOUR	1750	1211	849	2509	70.0%	48.0%	34.0%		
Ocracoke Beach (Ocracoke Island)								Atlantic Beach									
DAYS	2537	2019	1497	3510	72.0%	58.0%	43.0%	DAYS	1522	1218	910	2105	72.0%	58.0%	43.0%		
NIGHTS	2678	1855	1535	3510	76.0%	53.0%	44.0%	NIGHTS	1630	1136	944	2105	77.0%	54.0%	45.0%		
24-HOUR	2592	1828	1278	3510	74.0%	52.0%	36.0%	24-HOUR	1577	1110	774	2105	75.0%	53.0%	37.0%		
Cape Lookout Lighthouse								Oak Island									
DAYS	1522	1218	910	2106	72.0%	58.0%	43.0%	DAYS	1692	1314	991	2509	67.0%	52.0%	39.0%		
NIGHTS	1630	1136	945	2106	77.0%	54.0%	45.0%	NIGHTS	1858	1262	1062	2509	74.0%	50.0%	42.0%		
24-HOUR	1577	1111	774	2106	75.0%	53.0%	37.0%	24-HOUR	1750	1211	849	2509	70.0%	48.0%	34.0%		
Portsmouth Life Saving Station Tower								Holden Beach									
DAYS	2537	2019	1497	3510	72.0%	58.0%	43.0%	DAYS	1692	1314	991	2509	67.0%	52.0%	39.0%		
NIGHTS	2678	1855	1534	3510	76.0%	53.0%	44.0%	NIGHTS	1858	1261	1062	2509	74.0%	50.0%	42.0%		
24-HOUR	2592	1828	1278	3510	74.0%	52.0%	36.0%	24-HOUR	1750	1211	849	2509	70.0%	48.0%	34.0%		
Great Island Camps								Sunset Beach									
DAYS	1522	1218	910	2106	72.0%	58.0%	43.0%	DAYS	1692	1314	991	2509	67.0%	52.0%	39.0%		
NIGHTS	1630	1136	945	2106	77.0%	54.0%	45.0%	NIGHTS	1858	1261	1062	2509	74.0%	50.0%	42.0%		
24-HOUR	1577	1111	774	2106	75.0%	53.0%	37.0%	24-HOUR	1750	1211	849	2509	70.0%	48.0%	34.0%		
Long Point Camps								Total									
DAYS	1522	1218	910	2106	72.0%	58.0%	43.0%	DAYS	35558	28320	21007	49915	71.2%	56.7%	42.1%		
NIGHTS	1630	1136	945	2106	77.0%	54.0%	45.0%	NIGHTS	37863	26391	21862	49915	75.9%	52.9%	43.8%		
24-HOUR	1577	1111	774	2106	75.0%	53.0%	37.0%	24-HOUR	36448	25855	17984	49915	73.0%	51.8%	36.0%		
Cape Point								Average								Standard Deviation	
DAYS	1522	1218	910	2106	72.0%	58.0%	43.0%	DAYS	70.9%	56.7%	42.1%	DAYS	2.1%	2.6%	1.7%		
NIGHTS	1630	1136	945	2106	77.0%	54.0%	45.0%	NIGHTS	75.8%	53.0%	43.8%	NIGHTS	1.1%	1.7%	1.1%		
24-HOUR	1577	1111	774	2106	75.0%	53.0%	37.0%	24-HOUR	73.0%	51.8%	36.2%	24-HOUR	1.8%	2.1%	1.3%		

Table A-18 Days Cloudy

Site Name	Days 50% Cloudy	Days 75% Cloudy	Days 90% Cloudy	Total Days	% Days 50% Cloudy	% Days 75% Cloudy	% Days 90% Cloudy	Site Name	Days 50% Cloudy	Days 75% Cloudy	Days 90% Cloudy	Total Days	% Days 50% Cloudy	% Days 75% Cloudy	% Days 90% Cloudy			
Coquina Beach (Bodie Island)								Corolla Lighthouse										
DAYS	889	1342	1833	3190	28.0%	42.0%	57.0%	DAYS	889	1342	1833	3190	28.0%	42.0%	57.0%			
NIGHTS	772	1482	1788	3190	24.0%	46.0%	56.0%	NIGHTS	772	1482	1787	3190	24.0%	46.0%	56.0%			
24-HOUR PERIOD	1352	2024		3190	24.0%	42.0%	63.0%	24-HOUR PERIOD	1351	2024		3190	24.0%	42.0%	63.0%			
Bodie Island Lighthouse								Beach at Duck										
DAYS	889	1342	1833	3190	28.0%	42.0%	57.0%	DAYS	889	1342	1833	3190	28.0%	42.0%	57.0%			
NIGHTS	772	1482	1787	3190	24.0%	46.0%	56.0%	NIGHTS	772	1482	1787	3190	24.0%	46.0%	56.0%			
24-HOUR PERIOD	1351	2024		3190	24.0%	42.0%	63.0%	24-HOUR PERIOD	1351	2024		3190	24.0%	42.0%	63.0%			
Lighthouse Beach (Buxton)								Kitty Hawk										
DAYS	889	1342	1833	3190	28.0%	42.0%	57.0%	DAYS	889	1342	1833	3190	28.0%	42.0%	57.0%			
NIGHTS	772	1482	1787	3190	24.0%	46.0%	56.0%	NIGHTS	772	1482	1787	3190	24.0%	46.0%	56.0%			
24-HOUR PERIOD	1351	2024		3190	24.0%	42.0%	63.0%	24-HOUR PERIOD	1351	2024		3190	24.0%	42.0%	63.0%			
Cape Hatteras Lighthouse								Bald Head Island										
DAYS	889	1342	1833	3190	28.0%	42.0%	57.0%	DAYS	817	1195	1518	2509	33.0%	48.0%	61.0%			
NIGHTS	772	1482	1787	3190	24.0%	46.0%	56.0%	NIGHTS	651	1247	1446	2509	26.0%	50.0%	58.0%			
24-HOUR PERIOD	1351	2024		3190	24.0%	42.0%	63.0%	24-HOUR PERIOD	1189	1660		2509	27.0%	47.0%	66.0%			
Ocracoke Beach (Ocracoke Island)								Atlantic Beach										
DAYS	973	1491	2013	3510	28.0%	42.0%	57.0%	DAYS	583	887	1195	2105	28.0%	42.0%	57.0%			
NIGHTS	832	1655	1975	3510	24.0%	47.0%	56.0%	NIGHTS	475	969	1161	2105	23.0%	46.0%	55.0%			
24-HOUR PERIOD	1507	2232		3510	23.0%	43.0%	64.0%	24-HOUR PERIOD	894	1331		2105	23.0%	42.0%	63.0%			
Cape Lookout Lighthouse								Oak Island										
DAYS	584	888	1196	2106	28.0%	42.0%	57.0%	DAYS	817	1195	1518	2509	33.0%	48.0%	61.0%			
NIGHTS	476	970	1161	2106	23.0%	46.0%	55.0%	NIGHTS	651	1247	1447	2509	26.0%	50.0%	58.0%			
24-HOUR PERIOD	894	1332		2106	23.0%	42.0%	63.0%	24-HOUR PERIOD	1189	1660		2509	27.0%	47.0%	66.0%			
Portsmouth Life Saving Station Tower								Holden Beach										
DAYS	973	1491	2013	3510	28.0%	42.0%	57.0%	DAYS	817	1195	1518	2509	33.0%	48.0%	61.0%			
NIGHTS	832	1655	1976	3510	24.0%	47.0%	56.0%	NIGHTS	651	1248	1447	2509	26.0%	50.0%	58.0%			
24-HOUR PERIOD	1507	2232		3510	23.0%	43.0%	64.0%	24-HOUR PERIOD	1190	1660		2509	27.0%	47.0%	66.0%			
Great Island Camps								Sunset Beach										
DAYS	584	888	1196	2106	28.0%	42.0%	57.0%	DAYS	817	1195	1518	2509	33.0%	48.0%	61.0%			
NIGHTS	476	970	1161	2106	23.0%	46.0%	55.0%	NIGHTS	651	1248	1447	2509	26.0%	50.0%	58.0%			
24-HOUR PERIOD	894	1332		2106	23.0%	42.0%	63.0%	24-HOUR PERIOD	1190	1660		2509	27.0%	47.0%	66.0%			
Long Point Camps								Total										
DAYS	584	888	1196	2106	28.0%	42.0%	57.0%	DAYS	14356	21595	28908	49915	28.8%	43.3%	57.9%			
NIGHTS	476	970	1161	2106	23.0%	46.0%	55.0%	NIGHTS	12051	23523	28053	49915	24.1%	47.1%	56.2%			
24-HOUR PERIOD	894	1332		2106	23.0%	42.0%	63.0%	24-HOUR PERIOD	0	21700	31931	49915	0.0%	43.5%	64.0%			
Cape Point								Average								Standard Deviation		
DAYS	584	888	1196	2106	28.0%	42.0%	57.0%	DAYS	29.1%	43.3%	57.9%	DAYS	2.1%	2.6%	1.7%			
NIGHTS	476	970	1161	2106	23.0%	46.0%	55.0%	NIGHTS	24.2%	47.0%	56.2%	NIGHTS	1.1%	1.7%	1.1%			
24-HOUR PERIOD	894	1332		2106	23.0%	42.0%	63.0%	24-HOUR PERIOD	24.3%	43.2%	63.8%	24-HOUR PERIOD	1.6%	2.1%	1.3%			

Table A-19 Days Foggy

Site Name	Days 50% Foggy	Days 75% Foggy	Days 90% Foggy	Total Days	% Days 50% Foggy	% Days 75% Foggy	% Days 90% Foggy	Site Name	Days 50% Foggy	Days 75% Foggy	Days 90% Foggy	Total Days	% Days 50% Foggy	% Days 75% Foggy	% Days 90% Foggy
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	21	8	3	3190	0.7%	0.3%	0.1%	DAYS	21	8	3	3190	0.7%	0.3%	0.1%
NIGHTS	10	2	1	3190	0.3%	0.1%	0.0%	NIGHTS	10	2	1	3190	0.3%	0.1%	0.0%
24-HOUR	11	2	1	3190	0.3%	0.1%	0.0%	24-HOUR	11	2	1	3190	0.3%	0.1%	0.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	21	8	3	3190	0.7%	0.3%	0.1%	DAYS	21	8	3	3190	0.7%	0.3%	0.1%
NIGHTS	10	2	1	3190	0.3%	0.1%	0.0%	NIGHTS	10	2	1	3190	0.3%	0.1%	0.0%
24-HOUR	11	2	1	3190	0.3%	0.1%	0.0%	24-HOUR	11	2	1	3190	0.3%	0.1%	0.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	21	8	3	3190	0.7%	0.3%	0.1%	DAYS	21	8	3	3190	0.7%	0.3%	0.1%
NIGHTS	10	2	1	3190	0.3%	0.1%	0.0%	NIGHTS	10	2	1	3190	0.3%	0.1%	0.0%
24-HOUR	11	2	1	3190	0.3%	0.1%	0.0%	24-HOUR	11	2	1	3190	0.3%	0.1%	0.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	21	8	3	3190	0.7%	0.3%	0.1%	DAYS	4	1	0	2509	0.2%	0.0%	0.0%
NIGHTS	10	2	1	3190	0.3%	0.1%	0.0%	NIGHTS	1	0	0	2509	0.0%	0.0%	0.0%
24-HOUR	11	2	1	3190	0.3%	0.1%	0.0%	24-HOUR	1	0	0	2509	0.0%	0.0%	0.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	21	8	2	3510	0.6%	0.2%	0.1%	DAYS	9	1	0	2105	0.4%	0.1%	0.0%
NIGHTS	10	2	1	3510	0.3%	0.1%	0.0%	NIGHTS	2	0	0	2105	0.1%	0.0%	0.0%
24-HOUR	11	2	1	3510	0.3%	0.1%	0.0%	24-HOUR	1	0	0	2105	0.1%	0.0%	0.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	9	1	0	2106	0.4%	0.1%	0.0%	DAYS	4	1	0	2509	0.2%	0.0%	0.0%
NIGHTS	2	0	0	2106	0.1%	0.0%	0.0%	NIGHTS	1	0	0	2509	0.0%	0.0%	0.0%
24-HOUR	1	0	0	2106	0.1%	0.0%	0.0%	24-HOUR	1	0	0	2509	0.0%	0.0%	0.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	21	8	2	3510	0.6%	0.2%	0.1%	DAYS	4	0	0	2509	0.2%	0.0%	0.0%
NIGHTS	10	2	1	3510	0.3%	0.1%	0.0%	NIGHTS	1	0	0	2509	0.0%	0.0%	0.0%
24-HOUR	11	2	1	3510	0.3%	0.1%	0.0%	24-HOUR	1	0	0	2509	0.0%	0.0%	0.0%
Great Island Camps								Sunset Beach							
DAYS	9	1	0	2106	0.4%	0.1%	0.0%	DAYS	4	0	0	2509	0.2%	0.0%	0.0%
NIGHTS	2	0	0	2106	0.1%	0.0%	0.0%	NIGHTS	1	0	0	2509	0.0%	0.0%	0.0%
24-HOUR	1	0	0	2106	0.1%	0.0%	0.0%	24-HOUR	1	0	0	2509	0.0%	0.0%	0.0%
Long Point Camps								Total							
DAYS	9	1	0	2106	0.4%	0.1%	0.0%	DAYS	250	79	25	49915	0.5%	0.2%	0.1%
NIGHTS	2	0	0	2106	0.1%	0.0%	0.0%	NIGHTS	104	18	9	49915	0.2%	0.0%	0.0%
24-HOUR	1	0	0	2106	0.1%	0.0%	0.0%	24-HOUR	108	18	9	49915	0.2%	0.0%	0.0%
Cape Point								Average							
DAYS	9	1	0	2106	0.4%	0.1%	0.0%	DAYS	0.48%	0.14%	0.04%	Standard Deviation			
NIGHTS	2	0	0	2106	0.1%	0.0%	0.0%	NIGHTS	0.19%	0.03%	0.02%	DAYS	0.2%	0.1%	0.0%
24-HOUR	1	0	0	2106	0.1%	0.0%	0.0%	24-HOUR	0.19%	0.03%	0.02%	NIGHTS	0.1%	0.0%	0.0%
												24-HOUR	0.1%	0.0%	0.0%

Table A-20 Days Sunny - Winter

Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear	Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	489	399	308	763	64.0%	52.0%	40.0%	DAYS	490	399	308	763	64.0%	52.0%	40.0%
NIGHTS	524	341	280	763	69.0%	45.0%	37.0%	NIGHTS	525	342	281	763	69.0%	45.0%	37.0%
24-HOUR	495	354	248	763	65.0%	46.0%	33.0%	24-HOUR	496	355	248	763	65.0%	47.0%	33.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	490	399	308	763	64.0%	52.0%	40.0%	DAYS	490	399	308	763	64.0%	52.0%	40.0%
NIGHTS	525	342	281	763	69.0%	45.0%	37.0%	NIGHTS	525	342	281	763	69.0%	45.0%	37.0%
24-HOUR	496	355	248	763	65.0%	47.0%	33.0%	24-HOUR	496	355	248	763	65.0%	47.0%	33.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	490	399	308	763	64.0%	52.0%	40.0%	DAYS	490	399	308	763	64.0%	52.0%	40.0%
NIGHTS	525	342	281	763	69.0%	45.0%	37.0%	NIGHTS	525	342	281	763	69.0%	45.0%	37.0%
24-HOUR	496	355	248	763	65.0%	47.0%	33.0%	24-HOUR	496	355	248	763	65.0%	47.0%	33.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	490	399	308	763	64.0%	52.0%	40.0%	DAYS	394	315	263	624	63.0%	50.0%	42.0%
NIGHTS	525	342	281	763	69.0%	45.0%	37.0%	NIGHTS	423	281	248	624	68.0%	45.0%	40.0%
24-HOUR	496	355	248	763	65.0%	47.0%	33.0%	24-HOUR	392	285	216	624	63.0%	46.0%	35.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	562	466	359	875	64.0%	53.0%	41.0%	DAYS	353	290	245	534	66.0%	54.0%	46.0%
NIGHTS	604	390	322	875	69.0%	45.0%	37.0%	NIGHTS	383	260	218	534	72.0%	49.0%	41.0%
24-HOUR	576	408	288	875	66.0%	47.0%	33.0%	24-HOUR	364	261	197	534	68.0%	49.0%	37.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	353	290	245	535	66.0%	54.0%	46.0%	DAYS	394	315	263	624	63.0%	50.0%	42.0%
NIGHTS	383	260	219	535	72.0%	49.0%	41.0%	NIGHTS	423	281	247	624	68.0%	45.0%	40.0%
24-HOUR	364	262	197	535	68.0%	49.0%	37.0%	24-HOUR	392	285	216	624	63.0%	46.0%	35.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	562	466	359	875	64.0%	53.0%	41.0%	DAYS	394	315	263	624	63.0%	50.0%	42.0%
NIGHTS	604	390	321	875	69.0%	45.0%	37.0%	NIGHTS	423	280	247	624	68.0%	45.0%	40.0%
24-HOUR	576	408	288	875	66.0%	47.0%	33.0%	24-HOUR	392	285	216	624	63.0%	46.0%	35.0%
Great Island Camps								Sunset Beach							
DAYS	353	290	245	535	66.0%	54.0%	46.0%	DAYS	394	315	263	624	63.0%	50.0%	42.0%
NIGHTS	383	260	219	535	72.0%	49.0%	41.0%	NIGHTS	423	280	247	624	68.0%	45.0%	40.0%
24-HOUR	364	262	197	535	68.0%	49.0%	37.0%	24-HOUR	392	285	216	624	63.0%	46.0%	35.0%
Long Point Camps								Total							
DAYS	353	290	245	535	66.0%	54.0%	46.0%	DAYS	7,894	6,435	5,151	12,261	64.4%	52.5%	42.0%
NIGHTS	383	260	219	535	72.0%	49.0%	41.0%	NIGHTS	8,489	5,595	4,692	12,261	69.2%	45.6%	38.3%
24-HOUR	364	262	197	535	68.0%	49.0%	37.0%	24-HOUR	8,011	5,749	4,161	12,261	65.3%	46.9%	33.9%
Cape Point								Average							
DAYS	353	290	245	535	66.0%	54.0%	46.0%	DAYS	64.3%	52.2%	42.2%	Standard Deviation			
NIGHTS	383	260	219	535	72.0%	49.0%	41.0%	NIGHTS	69.6%	46.1%	38.8%	DAYS	1.1%	1.5%	2.5%
24-HOUR	364	262	197	535	68.0%	49.0%	37.0%	24-HOUR	65.5%	47.3%	34.6%	NIGHTS	1.6%	1.8%	1.9%
												24-HOUR	1.9%	1.2%	1.8%

Table A-21 Days Sunny - Spring

Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear	Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	597	473	344	811	74.0%	58.0%	42.0%	DAYS	597	473	344	811	74.0%	58.0%	42.0%
NIGHTS	630	465	379	811	78.0%	57.0%	47.0%	NIGHTS	630	465	379	811	78.0%	57.0%	47.0%
24-HOUR	609	439	301	811	75.0%	54.0%	37.0%	24-HOUR	609	439	301	811	75.0%	54.0%	37.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	597	474	345	811	74.0%	58.0%	43.0%	DAYS	597	474	345	811	74.0%	58.0%	43.0%
NIGHTS	630	465	379	811	78.0%	57.0%	47.0%	NIGHTS	630	465	379	811	78.0%	57.0%	47.0%
24-HOUR	609	440	301	811	75.0%	54.0%	37.0%	24-HOUR	609	440	301	811	75.0%	54.0%	37.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	597	474	345	811	74.0%	58.0%	43.0%	DAYS	597	474	345	811	74.0%	58.0%	43.0%
NIGHTS	630	465	379	811	78.0%	57.0%	47.0%	NIGHTS	630	465	379	811	78.0%	57.0%	47.0%
24-HOUR	609	440	301	811	75.0%	54.0%	37.0%	24-HOUR	609	440	301	811	75.0%	54.0%	37.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	597	474	345	811	74.0%	58.0%	43.0%	DAYS	428	348	255	633	68.0%	55.0%	40.0%
NIGHTS	630	465	379	811	78.0%	57.0%	47.0%	NIGHTS	479	332	280	633	76.0%	52.0%	44.0%
24-HOUR	609	440	301	811	75.0%	54.0%	37.0%	24-HOUR	456	323	224	633	72.0%	51.0%	35.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	639	487	356	874	73.0%	56.0%	41.0%	DAYS	376	304	227	508	74.0%	60.0%	45.0%
NIGHTS	683	473	391	874	78.0%	54.0%	45.0%	NIGHTS	411	292	250	508	81.0%	57.0%	49.0%
24-HOUR	653	446	311	874	75.0%	51.0%	36.0%	24-HOUR	398	282	196	508	78.0%	56.0%	39.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	376	304	227	508	74.0%	60.0%	45.0%	DAYS	428	347	254	633	68.0%	55.0%	40.0%
NIGHTS	411	292	250	508	81.0%	57.0%	49.0%	NIGHTS	479	332	280	633	76.0%	52.0%	44.0%
24-HOUR	398	282	196	508	78.0%	56.0%	39.0%	24-HOUR	456	322	224	633	72.0%	51.0%	35.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	639	486	355	874	73.0%	56.0%	41.0%	DAYS	428	348	255	633	68.0%	55.0%	40.0%
NIGHTS	683	473	391	874	78.0%	54.0%	45.0%	NIGHTS	479	332	280	633	76.0%	52.0%	44.0%
24-HOUR	653	445	311	874	75.0%	51.0%	36.0%	24-HOUR	456	323	224	633	72.0%	51.0%	35.0%
Great Island Camps								Sunset Beach							
DAYS	376	304	227	508	74.0%	60.0%	45.0%	DAYS	428	348	255	633	68.0%	55.0%	40.0%
NIGHTS	411	292	250	508	81.0%	57.0%	49.0%	NIGHTS	479	332	280	633	76.0%	52.0%	44.0%
24-HOUR	398	282	196	508	78.0%	56.0%	39.0%	24-HOUR	456	323	224	633	72.0%	51.0%	35.0%
Long Point Camps								Total							
DAYS	376	303	226	508	74.0%	60.0%	44.0%	DAYS	9,049	7,198	5,276	12,497	72.4%	57.6%	42.2%
NIGHTS	411	292	250	508	81.0%	57.0%	49.0%	NIGHTS	9,747	6,989	5,805	12,497	78.0%	55.9%	46.5%
24-HOUR	398	281	196	508	78.0%	55.0%	39.0%	24-HOUR	9,383	6,668	4,605	12,497	75.1%	53.4%	36.8%
Cape Point								Average							
DAYS	376	303	226	508	74.0%	60.0%	44.0%	DAYS	72.6%	57.7%	42.4%	Standard Deviation			
NIGHTS	411	292	250	508	81.0%	57.0%	49.0%	NIGHTS	78.4%	55.6%	46.7%	DAYS	2.5%	1.9%	1.8%
24-HOUR	398	281	196	508	78.0%	55.0%	39.0%	24-HOUR	75.2%	53.4%	37.0%	NIGHTS	1.9%	2.2%	1.9%
												24-HOUR	2.2%	1.9%	1.5%

Table A-22 Days Sunny - Summer

Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear	Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	661	530	369	804	82.0%	66.0%	46.0%	DAYS	661	530	368	804	82.0%	66.0%	46.0%
NIGHTS	704	528	439	804	88.0%	66.0%	55.0%	NIGHTS	704	529	440	804	88.0%	66.0%	55.0%
24-HOUR	690	517	339	804	86.0%	64.0%	42.0%	24-HOUR	690	517	340	804	86.0%	64.0%	42.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	660	529	368	804	82.0%	66.0%	46.0%	DAYS	660	529	368	804	82.0%	66.0%	46.0%
NIGHTS	704	529	440	804	88.0%	66.0%	55.0%	NIGHTS	704	529	440	804	88.0%	66.0%	55.0%
24-HOUR	690	516	339	804	86.0%	64.0%	42.0%	24-HOUR	690	516	339	804	86.0%	64.0%	42.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	660	529	368	804	82.0%	66.0%	46.0%	DAYS	660	529	368	804	82.0%	66.0%	46.0%
NIGHTS	704	529	440	804	88.0%	66.0%	55.0%	NIGHTS	704	529	440	804	88.0%	66.0%	55.0%
24-HOUR	690	516	339	804	86.0%	64.0%	42.0%	24-HOUR	690	516	339	804	86.0%	64.0%	42.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	660	529	368	804	82.0%	66.0%	46.0%	DAYS	463	320	200	616	75.0%	52.0%	32.0%
NIGHTS	704	529	440	804	88.0%	66.0%	55.0%	NIGHTS	511	339	261	616	83.0%	55.0%	42.0%
24-HOUR	690	516	339	804	86.0%	64.0%	42.0%	24-HOUR	484	295	177	616	79.0%	48.0%	29.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	733	582	411	883	83.0%	66.0%	47.0%	DAYS	440	337	215	549	80.0%	61.0%	39.0%
NIGHTS	780	590	495	883	88.0%	67.0%	56.0%	NIGHTS	476	333	258	549	87.0%	61.0%	47.0%
24-HOUR	764	569	381	883	87.0%	64.0%	43.0%	24-HOUR	456	316	186	549	83.0%	58.0%	34.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	440	337	215	549	80.0%	61.0%	39.0%	DAYS	464	321	200	616	75.0%	52.0%	32.0%
NIGHTS	476	334	259	549	87.0%	61.0%	47.0%	NIGHTS	511	339	261	616	83.0%	55.0%	42.0%
24-HOUR	457	316	186	549	83.0%	58.0%	34.0%	24-HOUR	484	296	178	616	79.0%	48.0%	29.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	734	583	411	883	83.0%	66.0%	47.0%	DAYS	463	320	200	616	75.0%	52.0%	32.0%
NIGHTS	780	590	495	883	88.0%	67.0%	56.0%	NIGHTS	511	338	260	616	83.0%	55.0%	42.0%
24-HOUR	764	570	382	883	87.0%	65.0%	43.0%	24-HOUR	483	295	177	616	78.0%	48.0%	29.0%
Great Island Camps								Sunset Beach							
DAYS	440	337	215	549	80.0%	61.0%	39.0%	DAYS	463	320	200	616	75.0%	52.0%	32.0%
NIGHTS	476	334	259	549	87.0%	61.0%	47.0%	NIGHTS	511	338	260	616	83.0%	55.0%	42.0%
24-HOUR	457	316	186	549	83.0%	58.0%	34.0%	24-HOUR	483	295	177	616	78.0%	48.0%	29.0%
Long Point Camps								Total							
DAYS	441	338	215	549	80.0%	62.0%	39.0%	DAYS	10,144	7,838	5,274	12,603	80.5%	62.2%	41.8%
NIGHTS	476	334	259	549	87.0%	61.0%	47.0%	NIGHTS	10,912	7,905	6,405	12,603	86.6%	62.7%	50.8%
24-HOUR	457	317	187	549	83.0%	58.0%	34.0%	24-HOUR	10,576	7,516	4,778	12,603	83.9%	59.6%	37.9%
Cape Point								Average							
DAYS	441	338	215	549	80.0%	62.0%	39.0%	DAYS	80.0%	61.6%	41.1%	Standard Deviation			
NIGHTS	476	334	259	549	87.0%	61.0%	47.0%	NIGHTS	86.6%	62.3%	50.0%	DAYS	2.9%	5.7%	5.9%
24-HOUR	457	317	187	549	83.0%	58.0%	34.0%	24-HOUR	83.6%	58.8%	37.0%	NIGHTS	2.0%	4.6%	5.7%
												24-HOUR	3.2%	6.5%	5.7%

Table A-23 Days Sunny - Fall

Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear	Site Name	Days 50% Clear	Days 75% Clear	Days 90% Clear	Total Days	% Days 50% Clear	% Days 75% Clear	% Days 90% Clear
Coquina Beach (Bodie Island)								Corolla Lighthouse							
DAYS	554	446	336	812	68.0%	55.0%	41.0%	DAYS	554	446	336	812	68.0%	55.0%	41.0%
NIGHTS	561	371	302	812	69.0%	46.0%	37.0%	NIGHTS	560	371	302	812	69.0%	46.0%	37.0%
24-HOUR	545	375	277	812	67.0%	46.0%	34.0%	24-HOUR	545	375	277	812	67.0%	46.0%	34.0%
Bodie Island Lighthouse								Beach at Duck							
DAYS	554	446	336	812	68.0%	55.0%	41.0%	DAYS	554	446	336	812	68.0%	55.0%	41.0%
NIGHTS	560	371	302	812	69.0%	46.0%	37.0%	NIGHTS	560	371	302	812	69.0%	46.0%	37.0%
24-HOUR	545	375	277	812	67.0%	46.0%	34.0%	24-HOUR	545	375	277	812	67.0%	46.0%	34.0%
Lighthouse Beach (Buxton)								Kitty Hawk							
DAYS	554	446	336	812	68.0%	55.0%	41.0%	DAYS	554	446	336	812	68.0%	55.0%	41.0%
NIGHTS	560	371	302	812	69.0%	46.0%	37.0%	NIGHTS	560	371	302	812	69.0%	46.0%	37.0%
24-HOUR	545	375	277	812	67.0%	46.0%	34.0%	24-HOUR	545	375	277	812	67.0%	46.0%	34.0%
Cape Hatteras Lighthouse								Bald Head Island							
DAYS	554	446	336	812	68.0%	55.0%	41.0%	DAYS	407	331	273	636	64.0%	52.0%	43.0%
NIGHTS	560	371	302	812	69.0%	46.0%	37.0%	NIGHTS	446	310	275	636	70.0%	49.0%	43.0%
24-HOUR	545	375	277	812	67.0%	46.0%	34.0%	24-HOUR	419	308	233	636	66.0%	48.0%	37.0%
Ocracoke Beach (Ocracoke Island)								Atlantic Beach							
DAYS	603	484	371	878	69.0%	55.0%	42.0%	DAYS	352	287	224	514	68.0%	56.0%	44.0%
NIGHTS	612	400	325	878	70.0%	46.0%	37.0%	NIGHTS	362	249	217	514	70.0%	48.0%	42.0%
24-HOUR	599	405	296	878	68.0%	46.0%	34.0%	24-HOUR	358	251	193	514	70.0%	49.0%	38.0%
Cape Lookout Lighthouse								Oak Island							
DAYS	352	287	224	514	68.0%	56.0%	44.0%	DAYS	407	331	273	636	64.0%	52.0%	43.0%
NIGHTS	362	249	217	514	70.0%	48.0%	42.0%	NIGHTS	446	310	275	636	70.0%	49.0%	43.0%
24-HOUR	358	251	193	514	70.0%	49.0%	38.0%	24-HOUR	419	308	233	636	66.0%	48.0%	37.0%
Portsmouth Life Saving Station Tower								Holden Beach							
DAYS	603	484	371	878	69.0%	55.0%	42.0%	DAYS	407	331	273	636	64.0%	52.0%	43.0%
NIGHTS	612	400	325	878	70.0%	46.0%	37.0%	NIGHTS	446	310	275	636	70.0%	49.0%	43.0%
24-HOUR	599	405	296	878	68.0%	46.0%	34.0%	24-HOUR	419	308	233	636	66.0%	48.0%	37.0%
Great Island Camps								Sunset Beach							
DAYS	352	287	224	514	68.0%	56.0%	44.0%	DAYS	407	331	273	636	64.0%	52.0%	43.0%
NIGHTS	362	249	217	514	70.0%	48.0%	42.0%	NIGHTS	446	310	275	636	70.0%	49.0%	43.0%
24-HOUR	358	251	193	514	70.0%	49.0%	38.0%	24-HOUR	419	308	233	636	66.0%	48.0%	37.0%
Long Point Camps								Total							
DAYS	352	287	224	514	68.0%	56.0%	44.0%	DAYS	8,472	6,849	5,306	12,554	67.5%	54.6%	42.3%
NIGHTS	362	249	217	514	70.0%	48.0%	42.0%	NIGHTS	8,739	5,882	4,949	12,554	69.6%	46.9%	39.4%
24-HOUR	358	251	193	514	70.0%	49.0%	38.0%	24-HOUR	8,479	5,922	4,428	12,554	67.5%	47.2%	35.3%
Cape Point								Average							
DAYS	352	287	224	514	68.0%	56.0%	44.0%	DAYS	67.2%	54.6%	42.4%	Standard Deviation			
NIGHTS	362	249	217	514	70.0%	48.0%	42.0%	NIGHTS	69.6%	47.2%	39.7%	DAYS	1.8%	1.5%	1.3%
24-HOUR	358	251	193	514	70.0%	49.0%	38.0%	24-HOUR	67.7%	47.3%	35.8%	NIGHTS	0.5%	1.3%	2.8%

Table A-24 Percent Sunny and Percent Cloudy

Site Name	Hours Clear	Total Hours	Percent Clear	Percent Cloudy	Site Name	Hours Clear	Total Hours	Percent Clear	Percent Cloudy
Coquina Beach (Bodie Island)					Corolla Lighthouse				
DAYS	28,434	41,470	68.6%	31.4%	DAYS	28,434	41,470	68.6%	31.4%
NIGHTS	24,923	35,090	71.0%	29.0%	NIGHTS	24,923	35,090	71.0%	29.0%
24-HOUR	53,357	76,560	69.7%	30.3%	24-HOUR	53,357	76,560	69.7%	30.3%
Bodie Island Lighthouse					Beach at Duck				
DAYS	28,434	41,470	68.6%	31.4%	DAYS	28,434	41,470	68.6%	31.4%
NIGHTS	24,923	35,090	71.0%	29.0%	NIGHTS	24,923	35,090	71.0%	29.0%
24-HOUR	53,357	76,560	69.7%	30.3%	24-HOUR	53,357	76,560	69.7%	30.3%
Lighthouse Beach (Buxton)					Kitty Hawk				
DAYS	28,434	41,470	68.6%	31.4%	DAYS	28,434	41,470	68.6%	31.4%
NIGHTS	24,923	35,090	71.0%	29.0%	NIGHTS	24,923	35,090	71.0%	29.0%
24-HOUR	53,357	76,560	69.7%	30.3%	24-HOUR	53,357	76,560	69.7%	30.3%
Cape Hatteras Lighthouse					Bald Head Island				
DAYS	28,434	41,470	68.6%	31.4%	DAYS	21,076	32,617	64.6%	35.4%
NIGHTS	24,923	35,090	71.0%	29.0%	NIGHTS	19,195	27,599	69.6%	30.5%
24-HOUR	53,357	76,560	69.7%	30.3%	24-HOUR	40,271	60,216	66.9%	33.1%
Ocracoke Beach (Ocracoke Island)					Atlantic Beach				
DAYS	31,321	45,630	68.6%	31.4%	DAYS	18,871	27,365	69.0%	31.0%
NIGHTS	27,466	38,610	71.1%	28.9%	NIGHTS	16,729	23,155	72.3%	27.8%
24-HOUR	58,787	84,240	69.8%	30.2%	24-HOUR	35,600	50,520	70.5%	29.5%
Cape Lookout Lighthouse					Oak Island				
DAYS	18,871	27,378	68.9%	31.1%	DAYS	21,076	32,617	64.6%	35.4%
NIGHTS	16,730	23,166	72.2%	27.8%	NIGHTS	19,195	27,599	69.6%	30.5%
24-HOUR	35,601	50,544	70.4%	29.6%	24-HOUR	40,271	60,216	66.9%	33.1%
Portsmouth Life Saving Station Tower					Holden Beach				
DAYS	31,321	45,630	68.6%	31.4%	DAYS	21,076	32,617	64.6%	35.4%
NIGHTS	27,466	38,610	71.1%	28.9%	NIGHTS	19,195	27,599	69.6%	30.5%
24-HOUR	58,787	84,240	69.8%	30.2%	24-HOUR	40,271	60,216	66.9%	33.1%
Great Island Camps					Sunset Beach				
DAYS	18,871	27,378	68.9%	31.1%	DAYS	21,076	32,617	64.6%	35.4%
NIGHTS	16,730	23,166	72.2%	27.8%	NIGHTS	19,195	27,599	69.6%	30.5%
24-HOUR	35,601	50,544	70.4%	29.6%	24-HOUR	40,271	60,216	66.9%	33.1%
Long Point Camps					Total				
DAYS	18,871	27,378	68.9%	31.1%	DAYS	440,339	648,895	67.9%	32.1%
NIGHTS	16,730	23,166	72.2%	27.8%	NIGHTS	389,822	549,065	71.0%	29.0%
24-HOUR	35,601	50,544	0.7044	29.6%	24-HOUR	794,560	1,147,416	69.2%	30.8%
Cape Point					Average				
DAYS	18,871	27,378	68.9%	31.1%	DAYS	67.8%	32.2%	1.8%	1.8%
NIGHTS	16,730	23,166	72.2%	27.8%	NIGHTS	71.0%	29.0%	1.0%	1.0%
24-HOUR	35,601	50,544	70.4%	29.6%	24-HOUR	69.3%	30.7%	1.4%	1.4%

Table A-25 Percent Foggy

Site Name	Hours Foggy	Total Hours	Percent Cloudy	Site Name	Hours Foggy	Total Hours	Percent Cloudy
Coquina Beach (Bodie Island)				Corolla Lighthouse			
DAYS	598	41,470	1.4%	DAYS	598	41,470	1.4%
NIGHTS	317	35,090	0.9%	NIGHTS	317	35,090	0.9%
24-HOUR	915	76,560	1.2%	24-HOUR	915	76,560	1.2%
Bodie Island Lighthouse				Beach at Duck			
DAYS	598	41,470	1.4%	DAYS	600	41,470	1.5%
NIGHTS	317	35,090	0.9%	NIGHTS	317	35,090	0.9%
24-HOUR	915	76,560	1.2%	24-HOUR	917	76,560	1.2%
Lighthouse Beach (Buxton)				Kitty Hawk			
DAYS	598	41,470	1.4%	DAYS	598	41,470	1.4%
NIGHTS	317	35,090	0.9%	NIGHTS	317	35,090	0.9%
24-HOUR	915	76,560	1.2%	24-HOUR	915	76,560	1.2%
Cape Hatteras Lighthouse				Bald Head Island			
DAYS	598	41,470	1.4%	DAYS	216	32,617	0.7%
NIGHTS	317	35,090	0.9%	NIGHTS	41	27,599	0.2%
24-HOUR	915	76,560	1.2%	24-HOUR	257	60,216	0.4%
Ocracoke Beach (Ocracoke Island)				Atlantic Beach			
DAYS	649	45,630	1.4%	DAYS	291	27,365	1.1%
NIGHTS	349	38,610	0.9%	NIGHTS	93	23,155	0.4%
24-HOUR	998	84,240	1.2%	24-HOUR	384	50,520	0.8%
Cape Lookout Lighthouse				Oak Island			
DAYS	291	27,378	1.1%	DAYS	216	32,617	0.7%
NIGHTS	93	23,166	0.4%	NIGHTS	41	27,599	0.2%
24-HOUR	384	50,544	0.8%	24-HOUR	257	60,216	0.4%
Portsmouth Life Saving Station Tower				Holden Beach			
DAYS	649	45,630	1.4%	DAYS	200	32,617	0.6%
NIGHTS	349	38,610	0.9%	NIGHTS	38	27,599	0.1%
24-HOUR	998	84,240	1.2%	24-HOUR	238	60,216	0.4%
Great Island Camps				Sunset Beach			
DAYS	291	27,378	1.1%	DAYS	192	32,617	0.6%
NIGHTS	93	23,166	0.4%	NIGHTS	35	27,599	0.1%
24-HOUR	384	50,544	0.8%	24-HOUR	227	60,216	0.4%
Long Point Camps				Total			
DAYS	291	27,378	1.1%	DAYS	7,765	648,895	1.2%
NIGHTS	93	23,166	0.4%	NIGHTS	3,537	549,065	0.6%
24-HOUR	384	50,544	0.8%	24-HOUR	11,302	1,197,960	0.9%
Cape Point				Average			
DAYS	291	27,378	1.1%	DAYS	1.2%	Standard Deviation	
NIGHTS	93	23,166	0.4%	NIGHTS	0.6%	DAYS	0.3%
24-HOUR	384	50,544	0.8%	24-HOUR	0.9%	NIGHTS	0.3%
						24-HOUR	0.3%

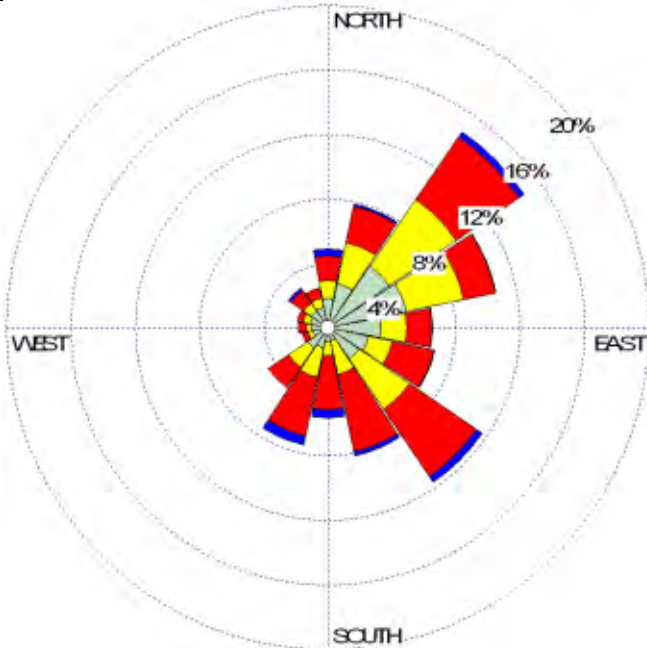
Attachment B - Typical Wind Rose Plot for Each Month for All Locations

Typical Wind Rose for Each Month

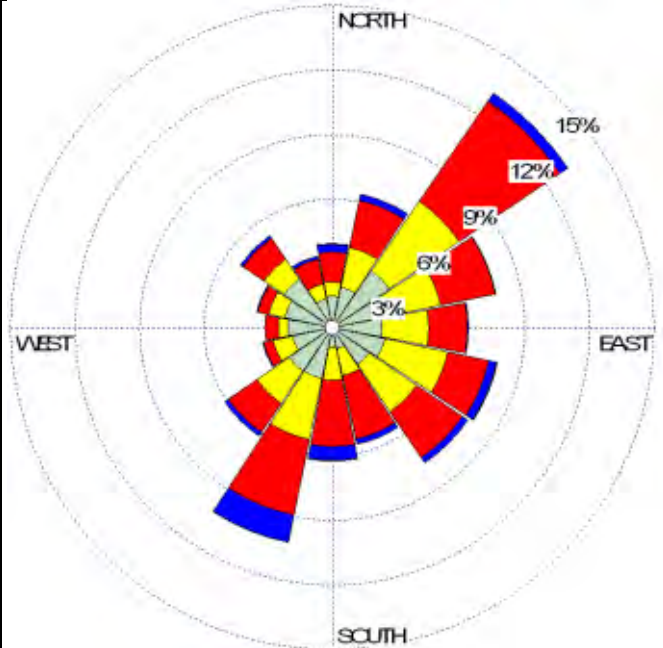
Coquina Beach (Bodie Island)

(January - April)

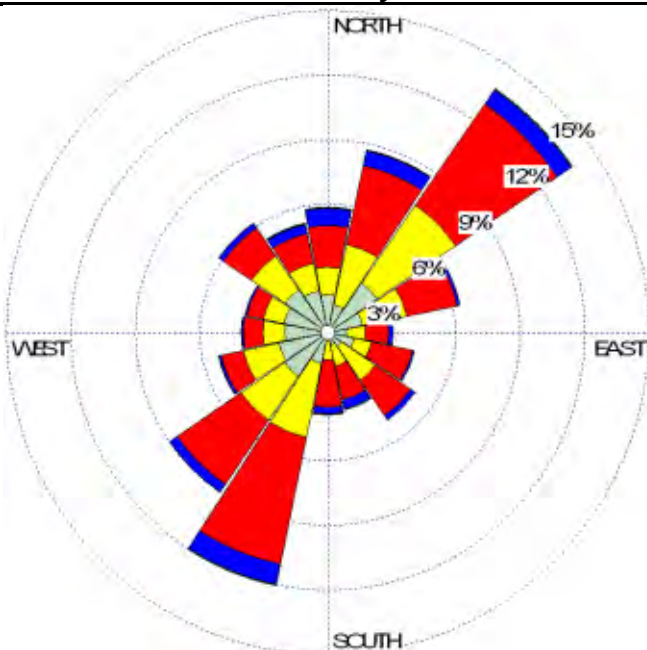
Wind Speed [m/s]



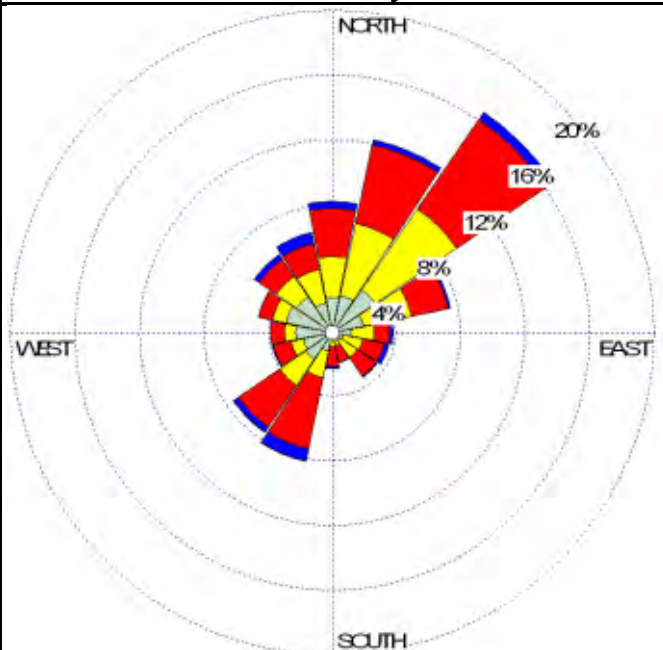
January



February



March



April

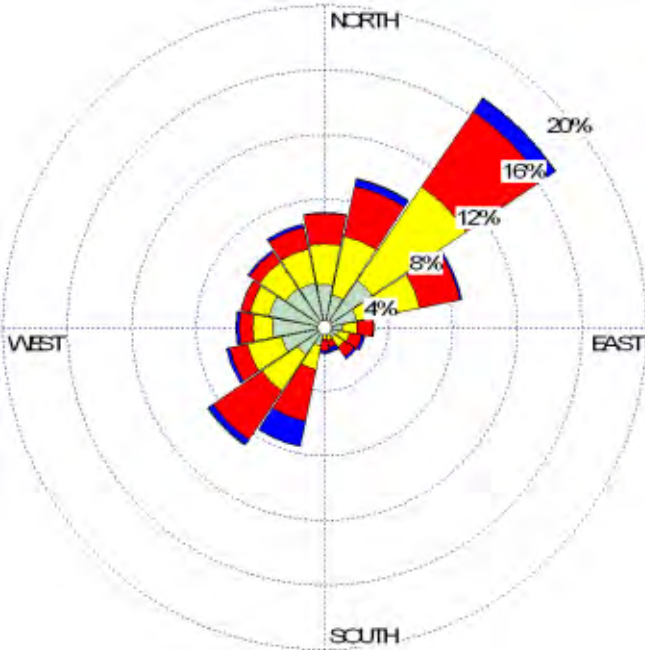
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

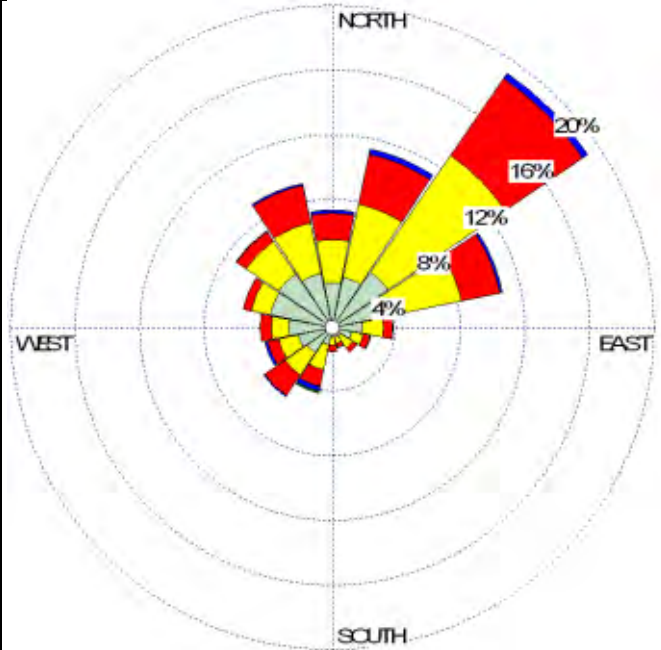
Coquina Beach (Bodie Island)

(May - August)

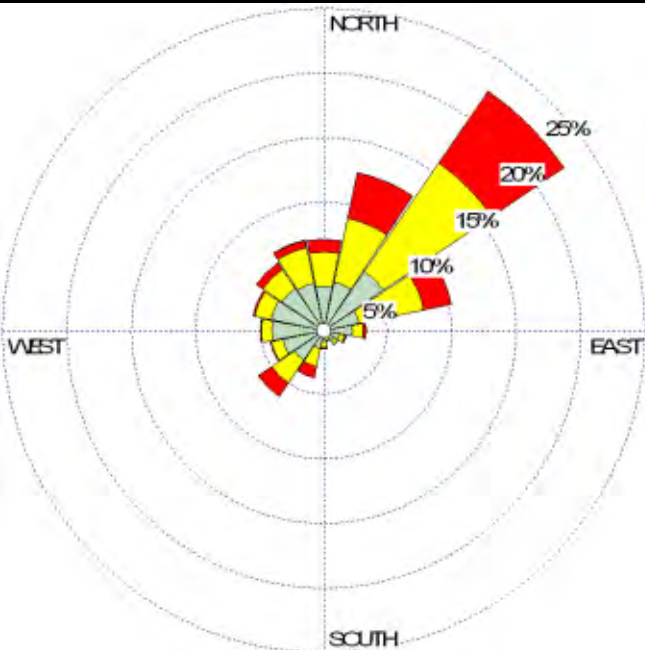
Wind Speed [m/s]



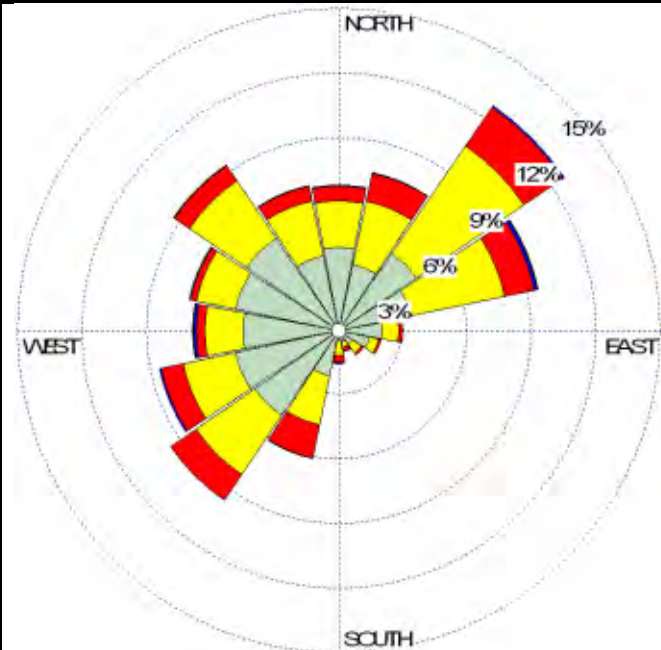
May



June



July



August

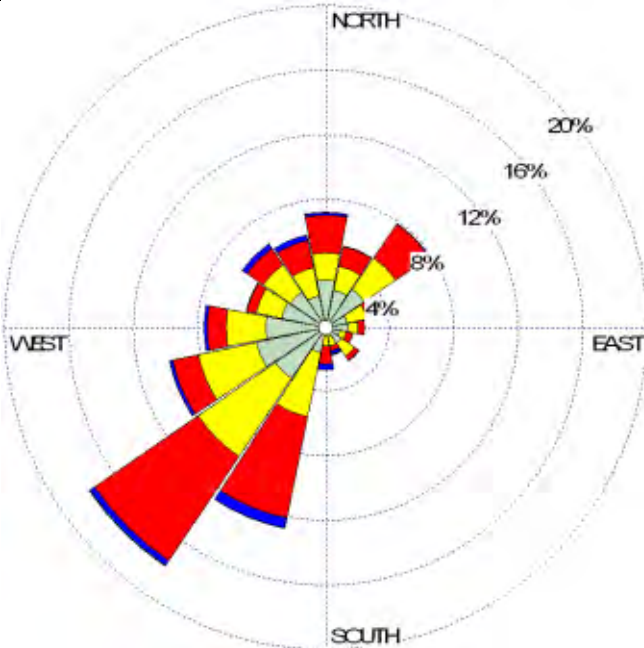
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

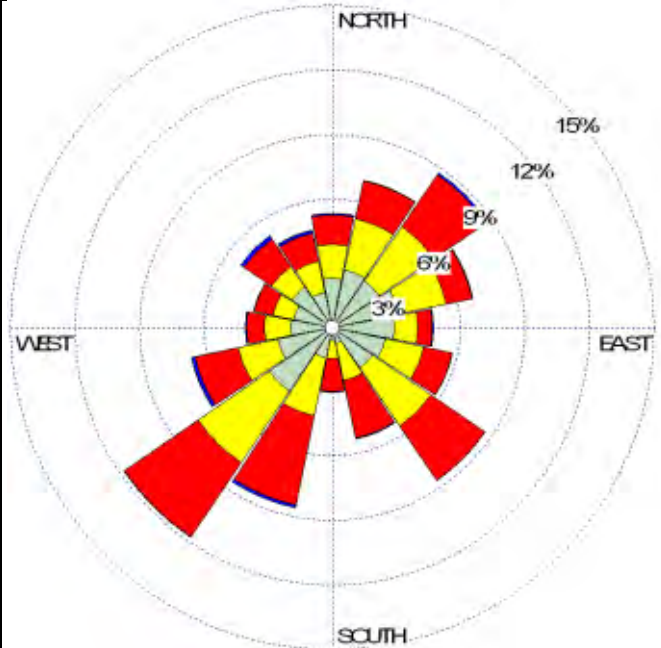
Coquina Beach (Bodie Island)

(September - December)

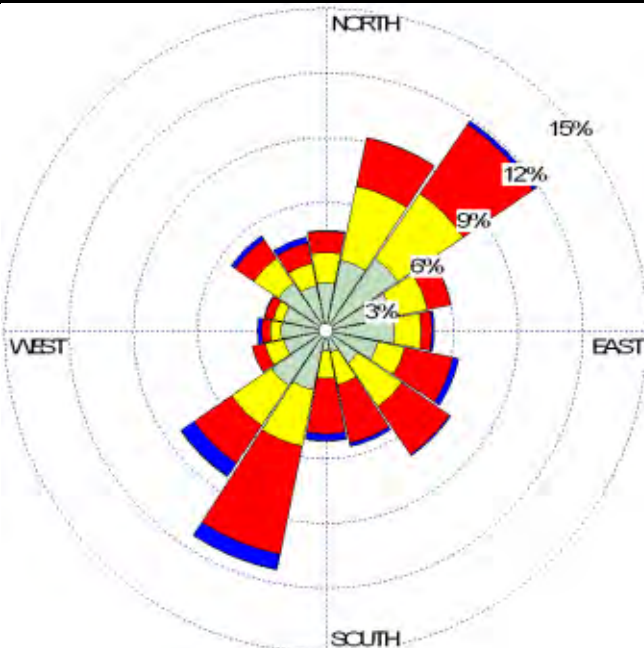
Wind Speed [m/s]



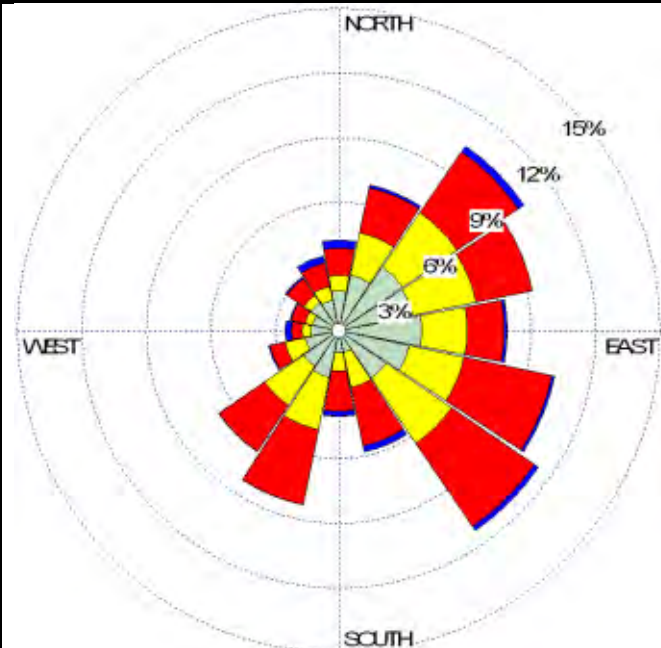
September



October



November



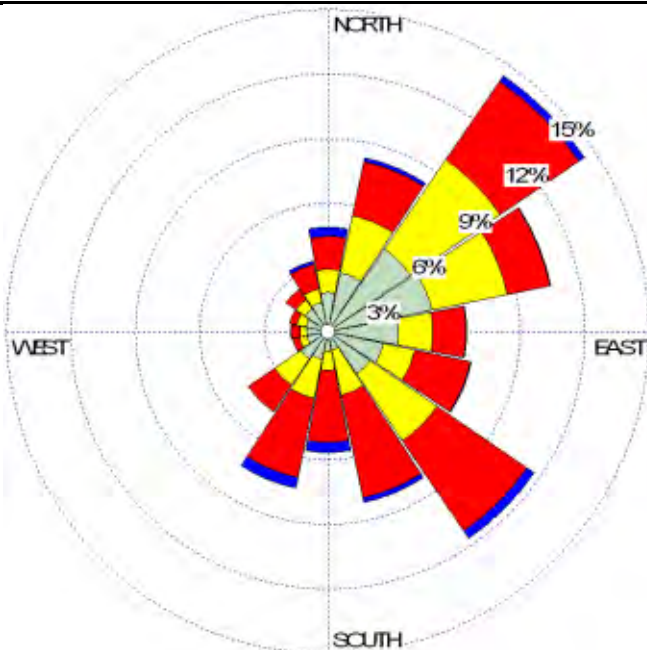
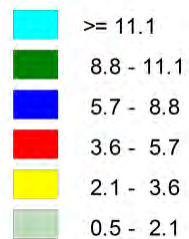
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

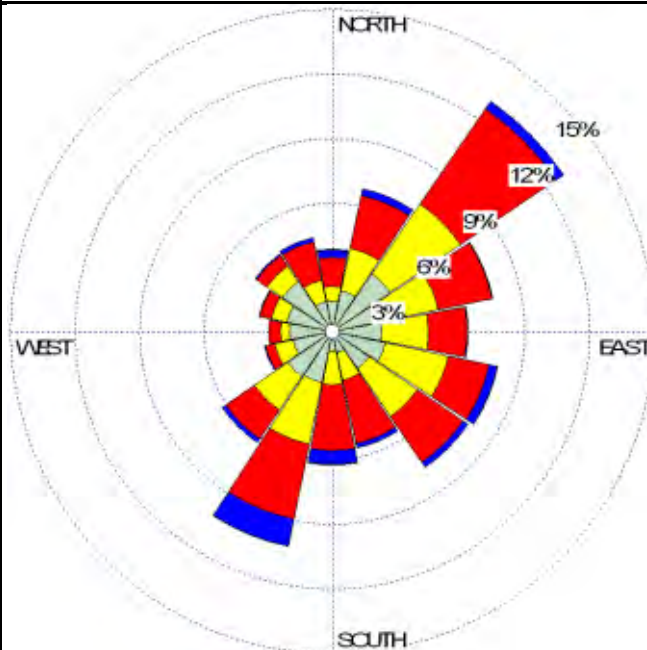
Typical Wind Rose for Each Month

Bodie Island Lighthouse (January - April)

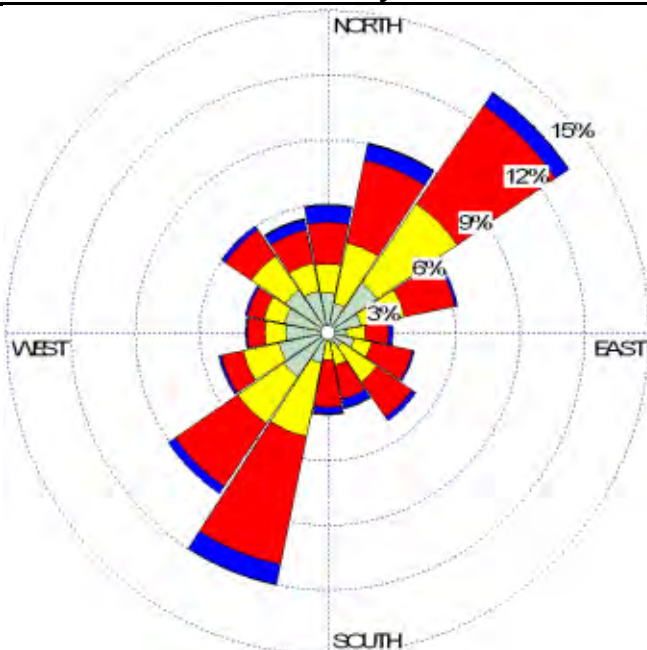
Wind Speed [m/s]



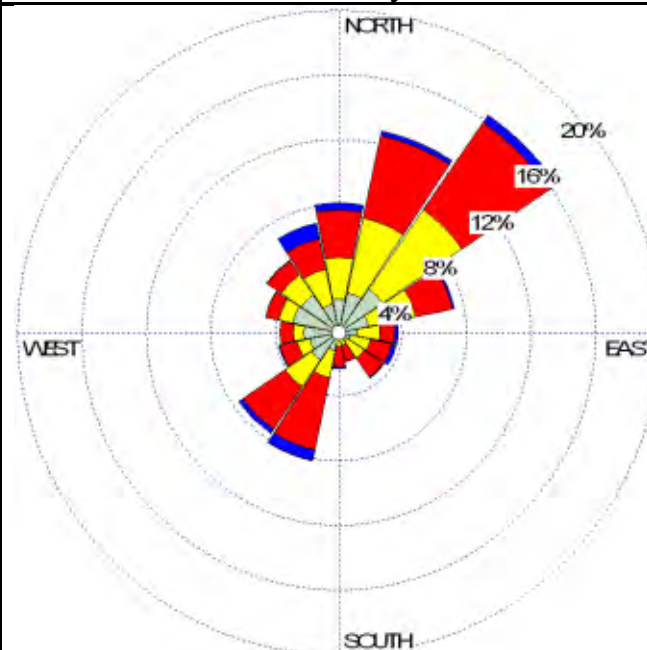
January



February



March



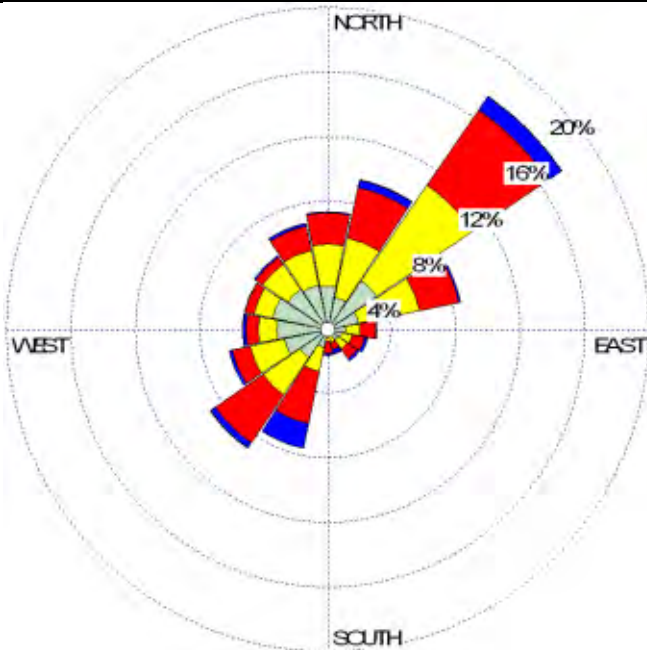
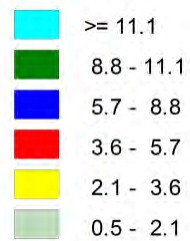
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

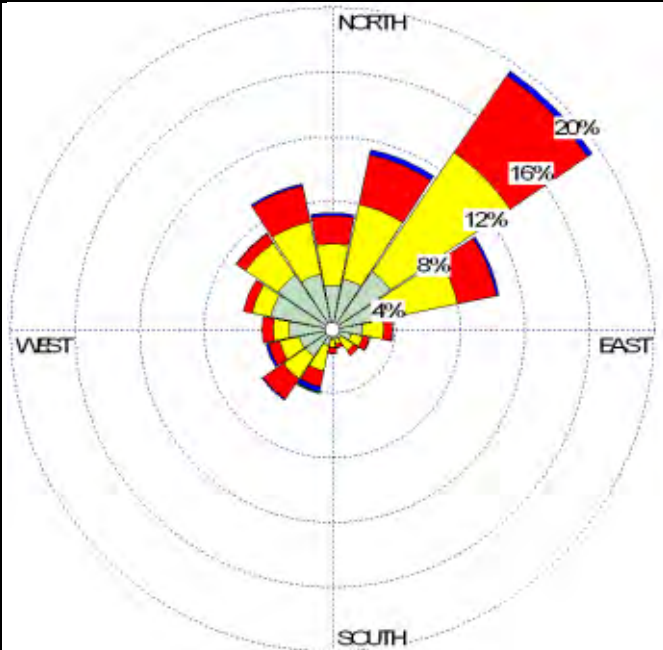
Typical Wind Rose for Each Month

Bodie Island Lighthouse (May - August)

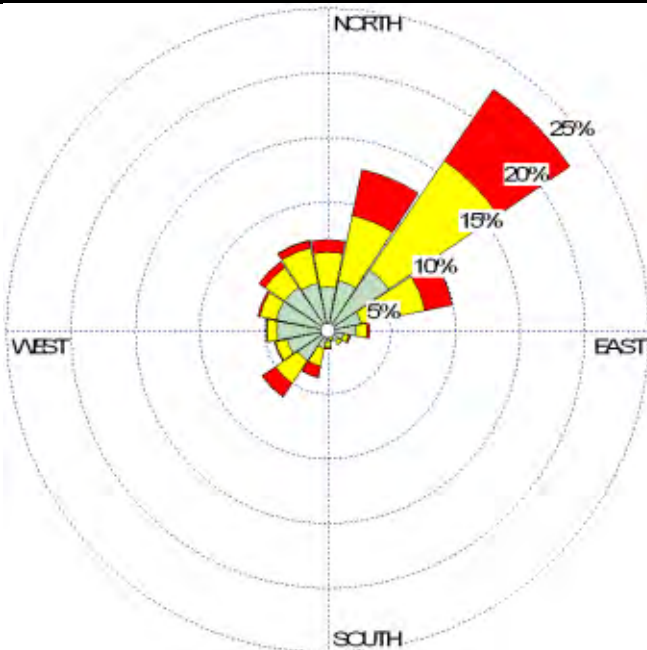
Wind Speed [m/s]



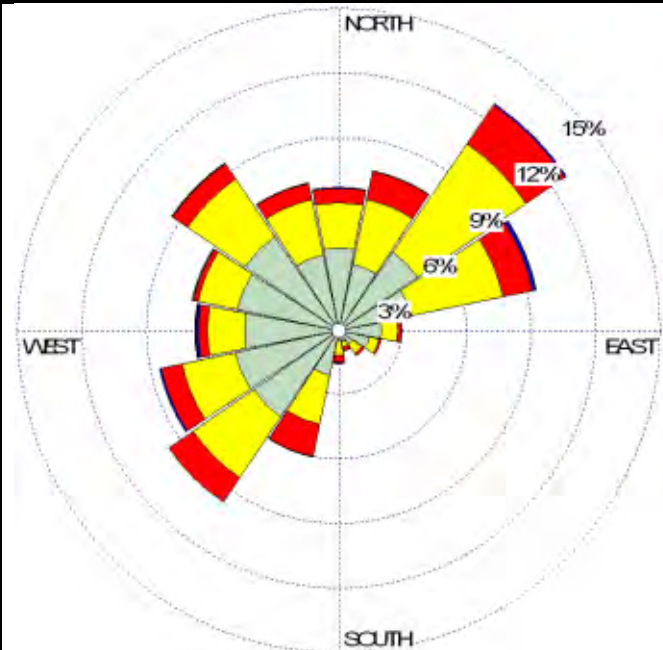
May



220 June



July



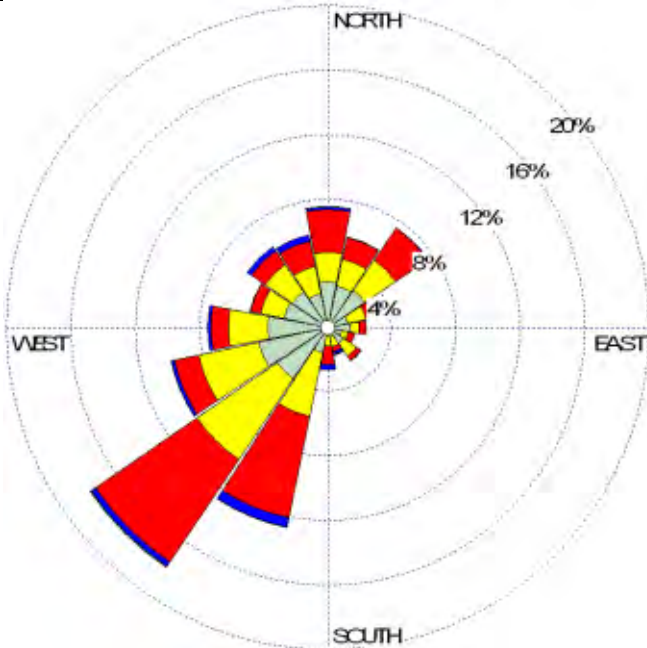
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

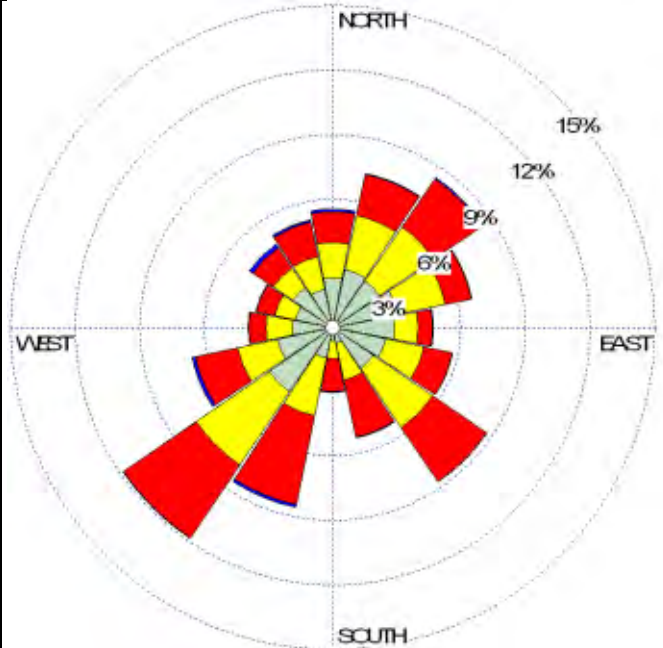
Typical Wind Rose for Each Month

Bodie Island Lighthouse
(September - December)

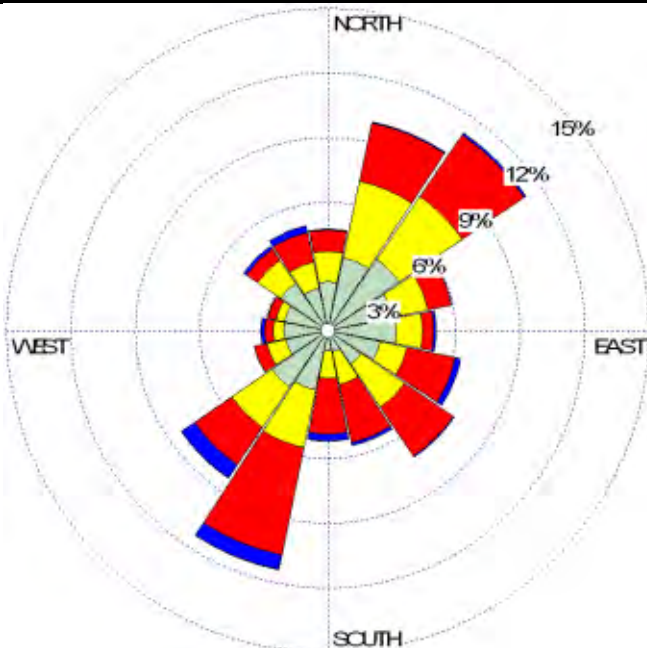
Wind Speed [m/s]



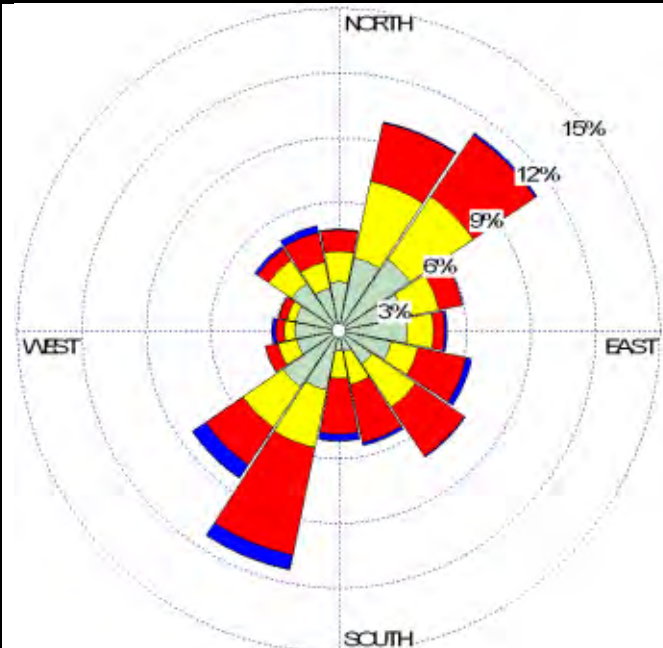
September



October



November



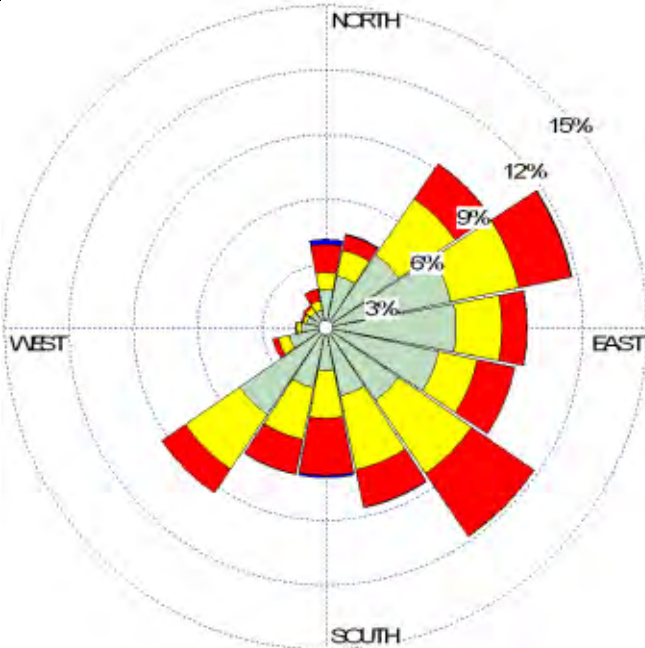
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

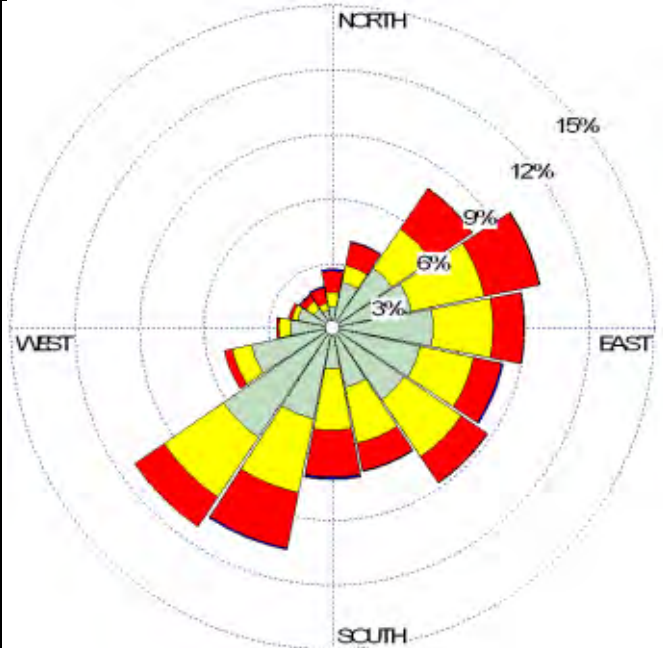
Typical Wind Rose for Each Month

Lighthouse Beach (Buxton) (January - April)

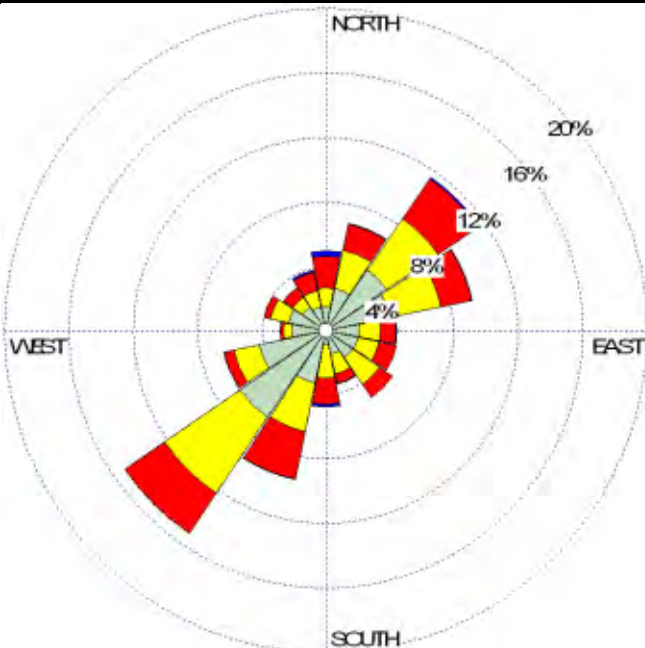
Wind Speed [m/s]



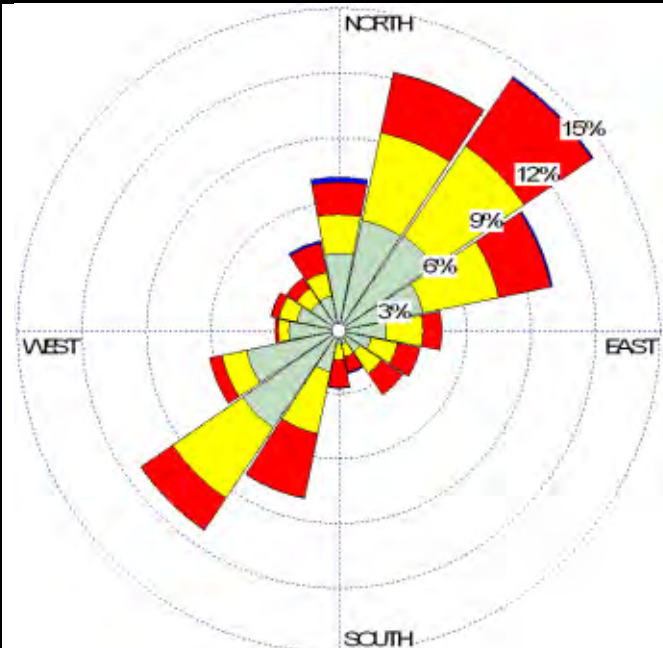
January



February



March



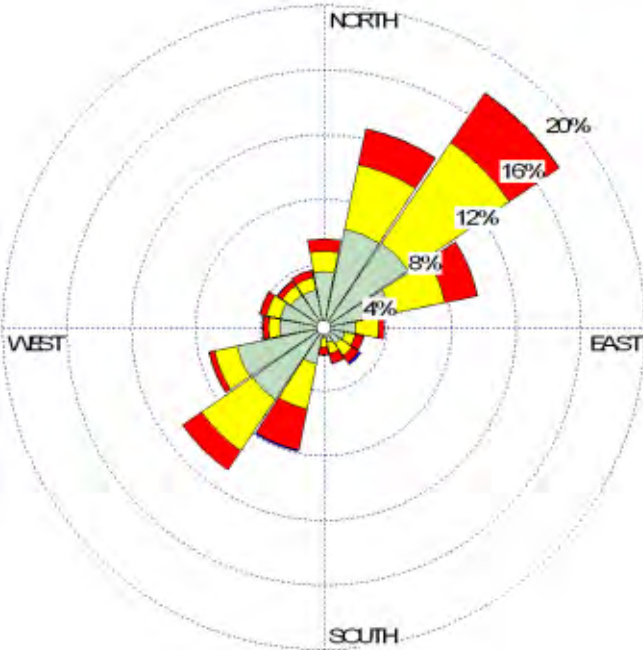
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

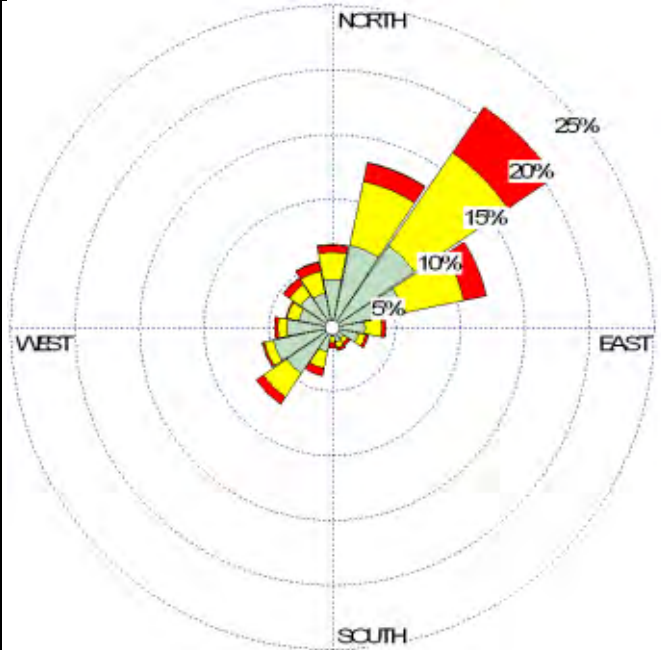
Typical Wind Rose for Each Month

Lighthouse Beach (Buxton) (May - August)

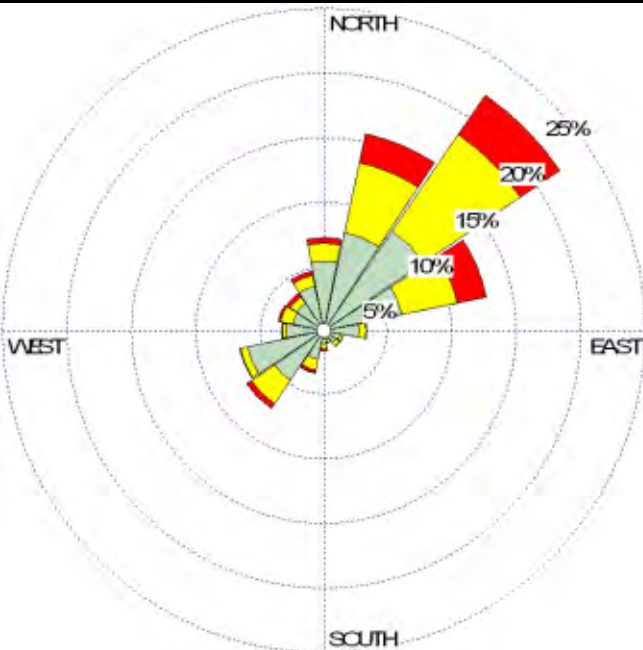
Wind Speed [m/s]



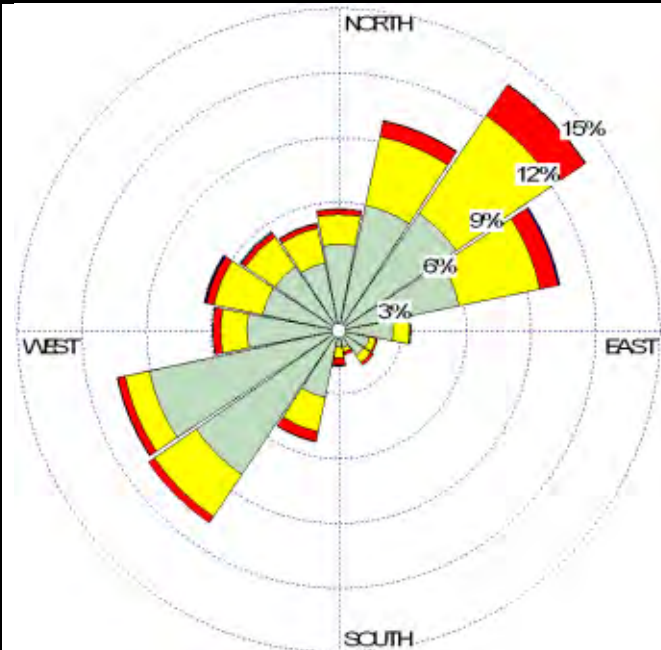
May



June



July



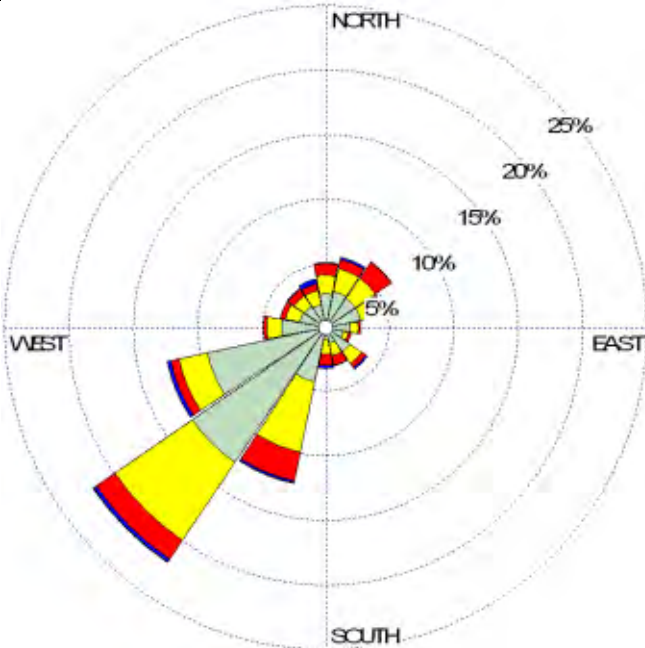
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

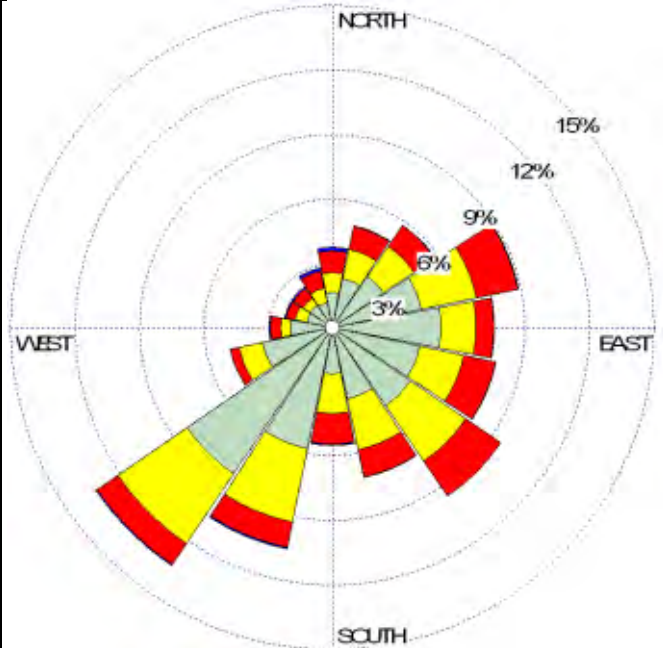
Typical Wind Rose for Each Month

Lighthouse Beach (Buxton)
(September - December)

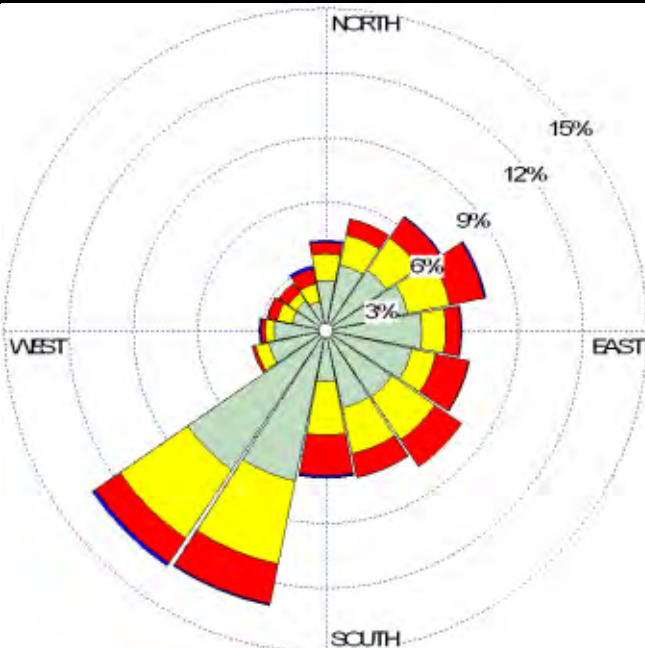
Wind Speed [m/s]



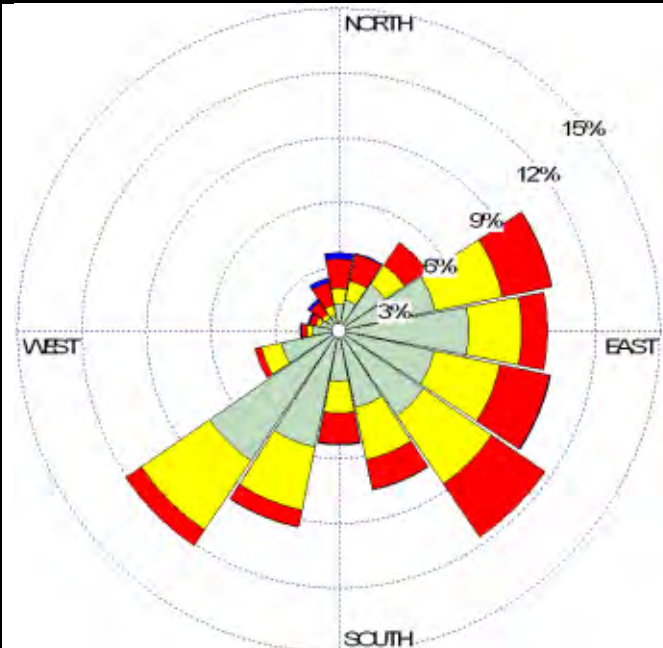
September



October



November



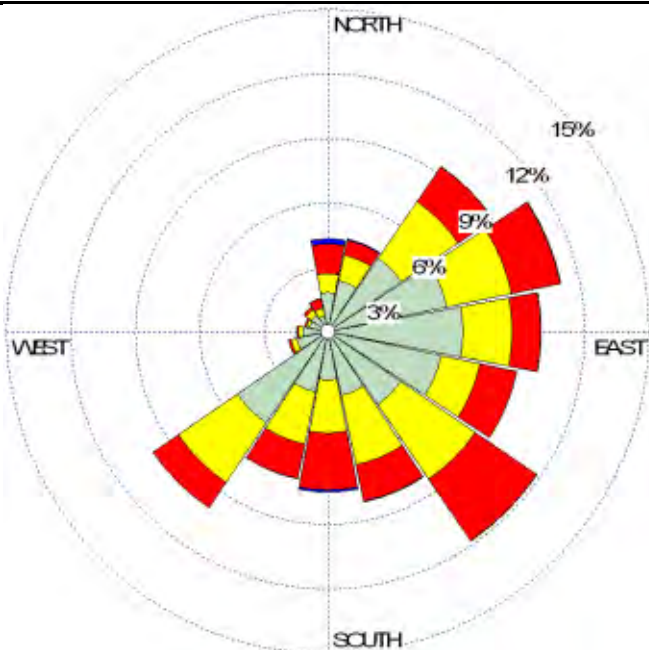
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

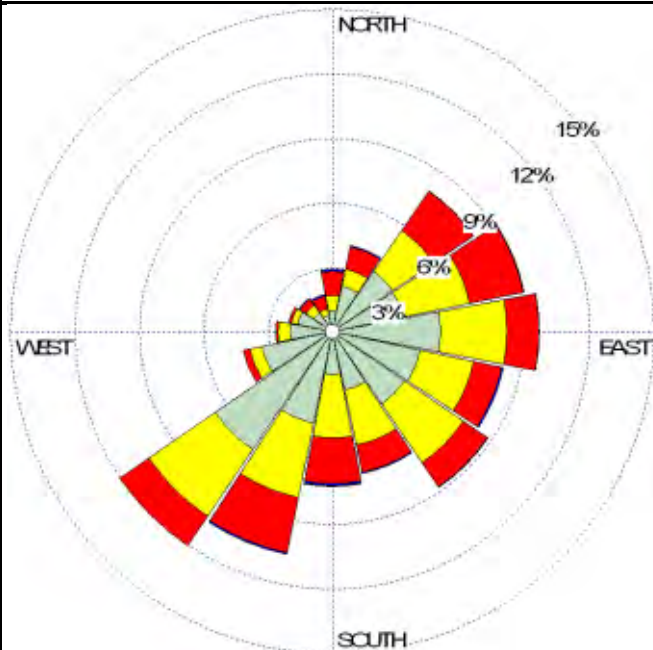
Typical Wind Rose for Each Month

Cape Hatteras Lighthouse (January - April)

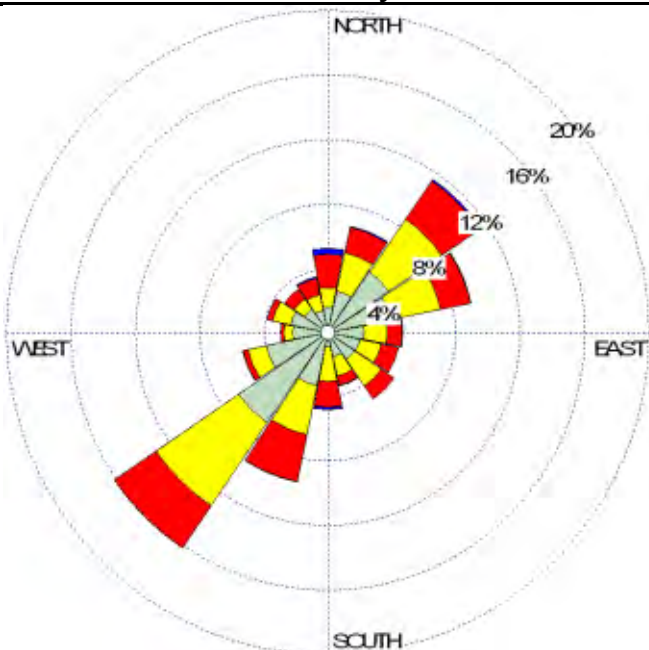
Wind Speed [m/s]



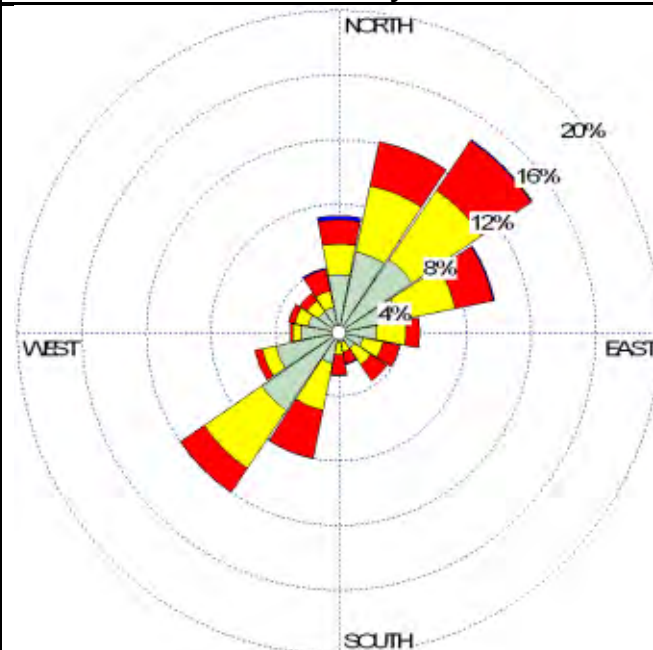
January



February



March



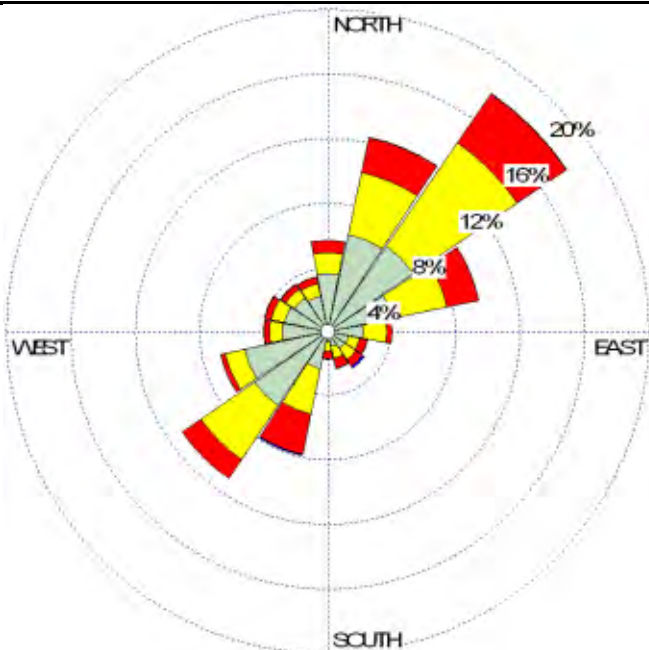
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

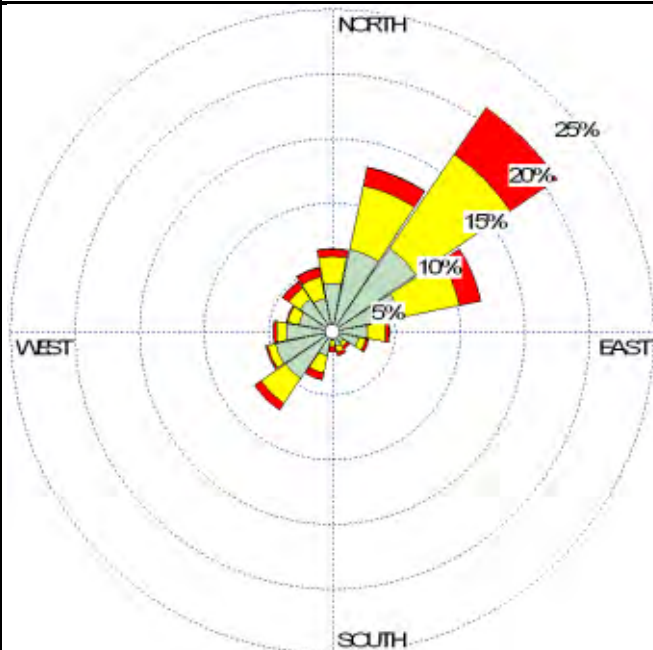
Typical Wind Rose for Each Month

Cape Hatteras Lighthouse (May - August)

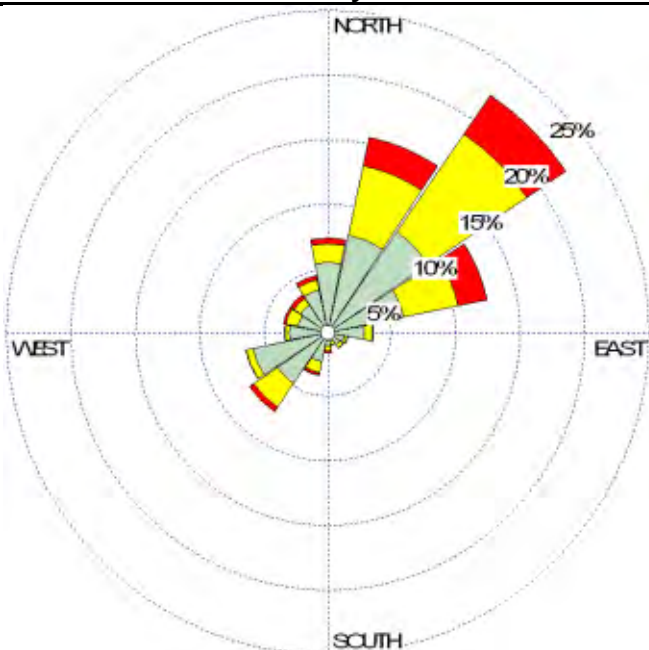
Wind Speed [m/s]



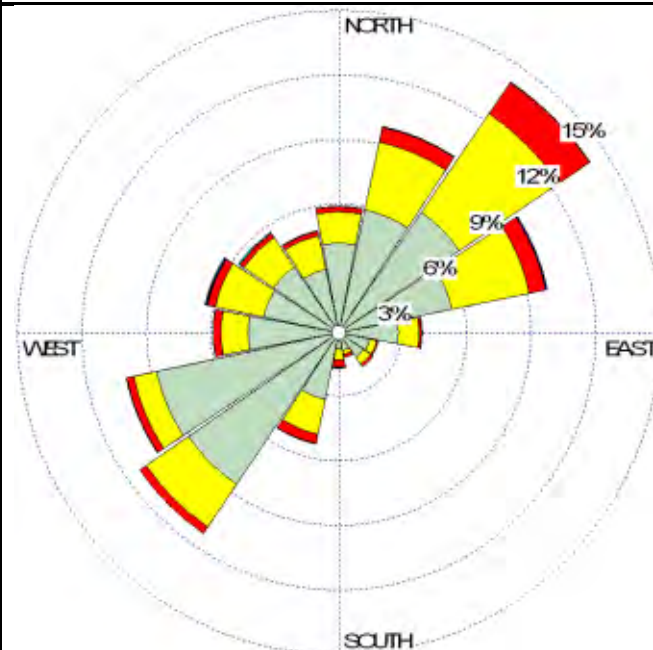
May



June



July



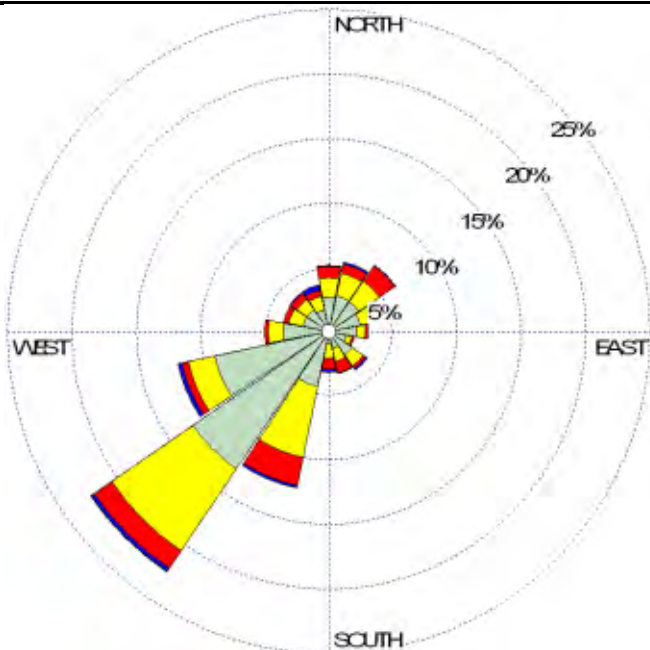
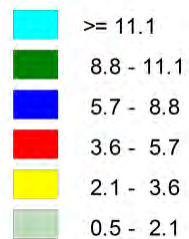
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

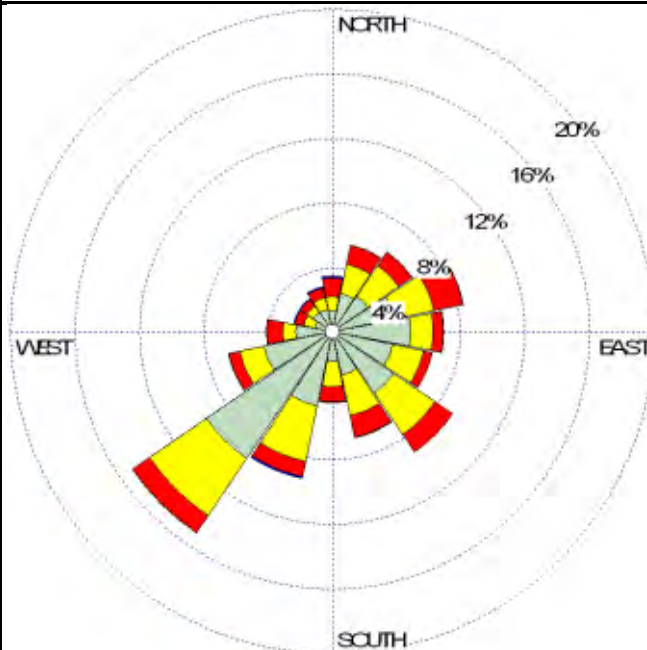
Typical Wind Rose for Each Month

Cape Hatteras Lighthouse (September - December)

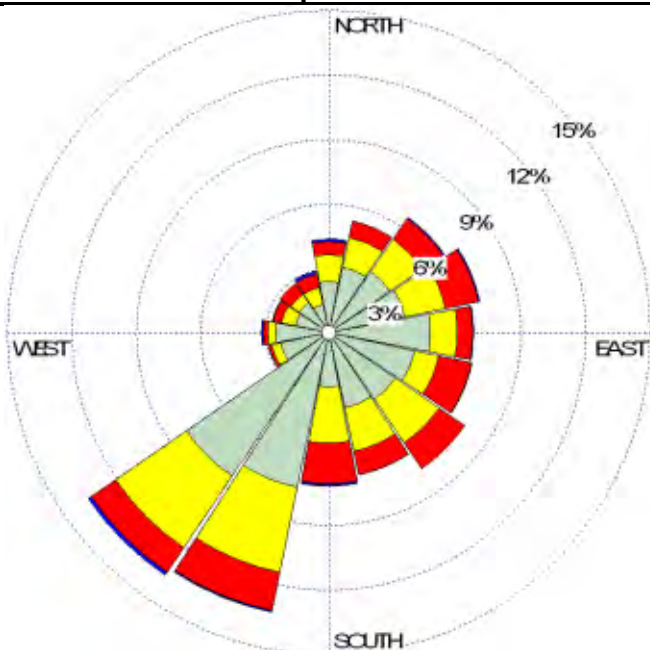
Wind Speed [m/s]



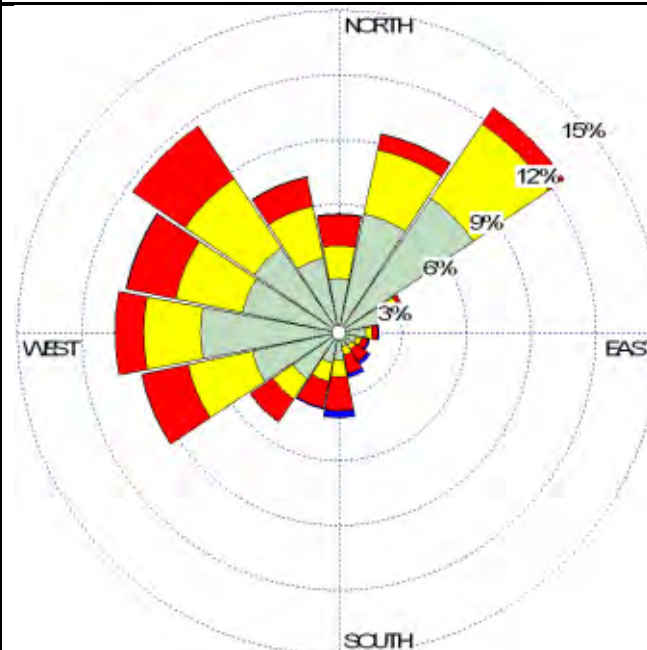
September



October



November



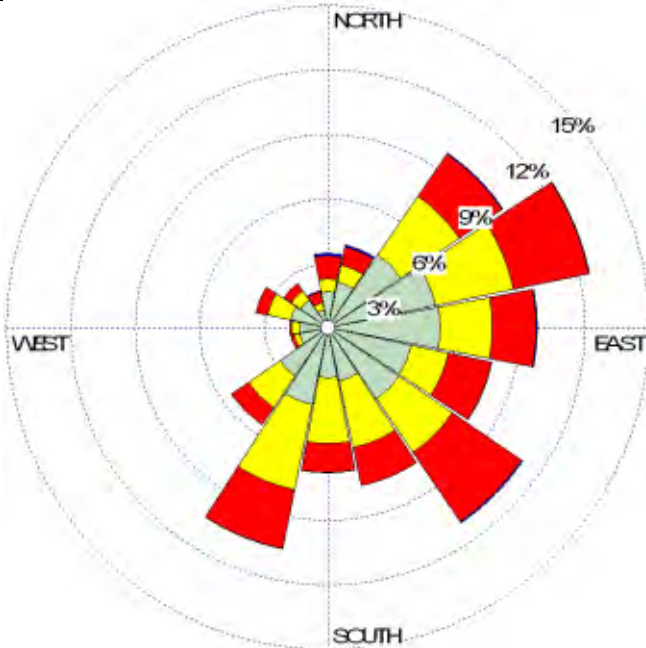
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

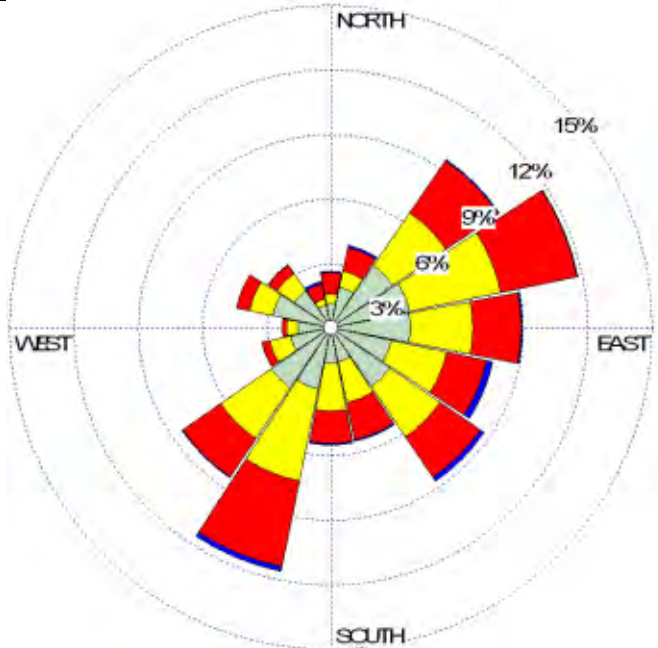
Typical Wind Rose for Each Month

Ocracoke Beach (Ocracoke Island)
January - April

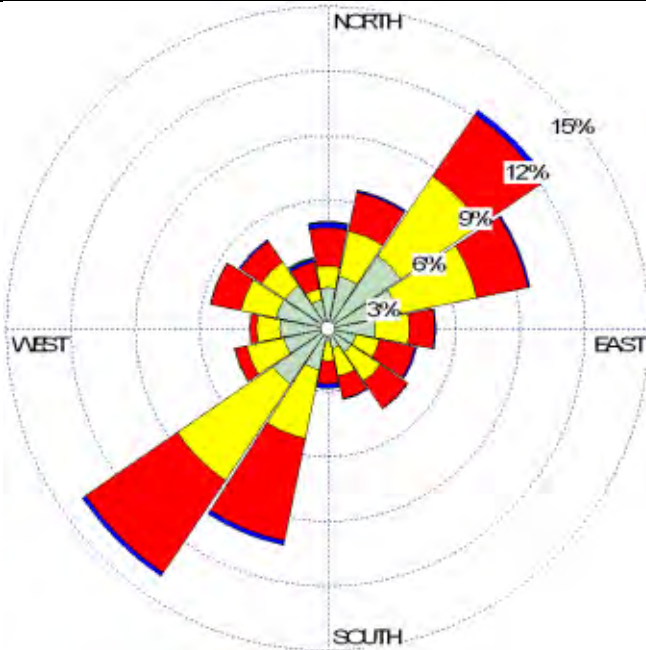
Wind Speed [m/s]



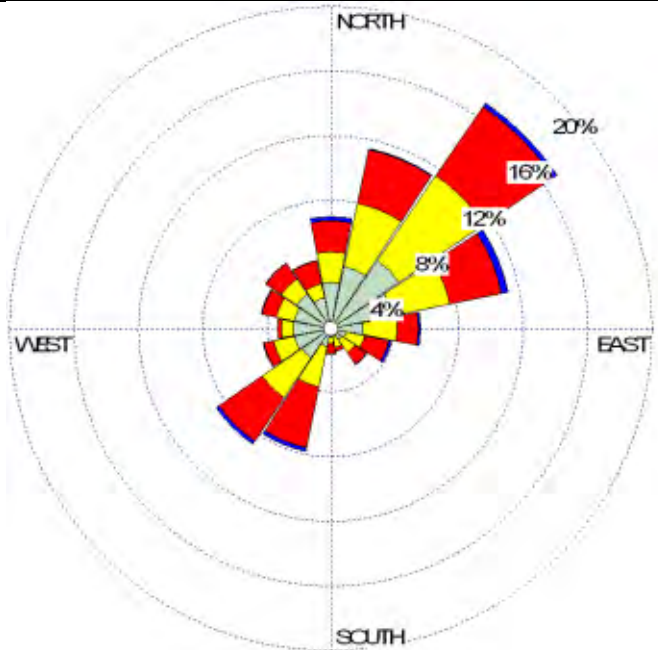
January



February



March



April

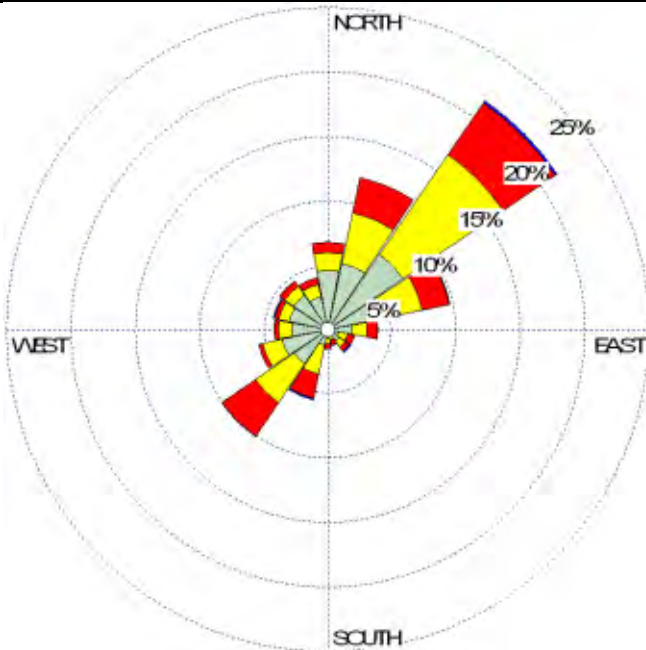
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

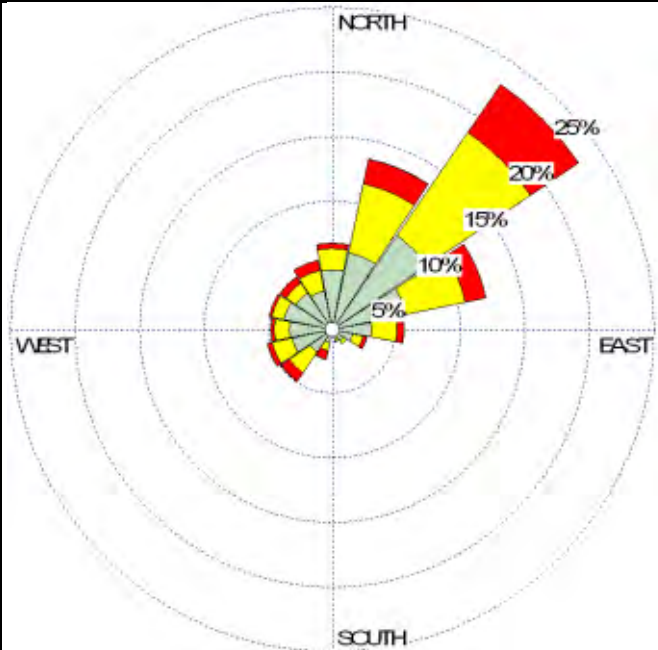
Ocracoke Beach (Ocracoke Island)

(May - August)

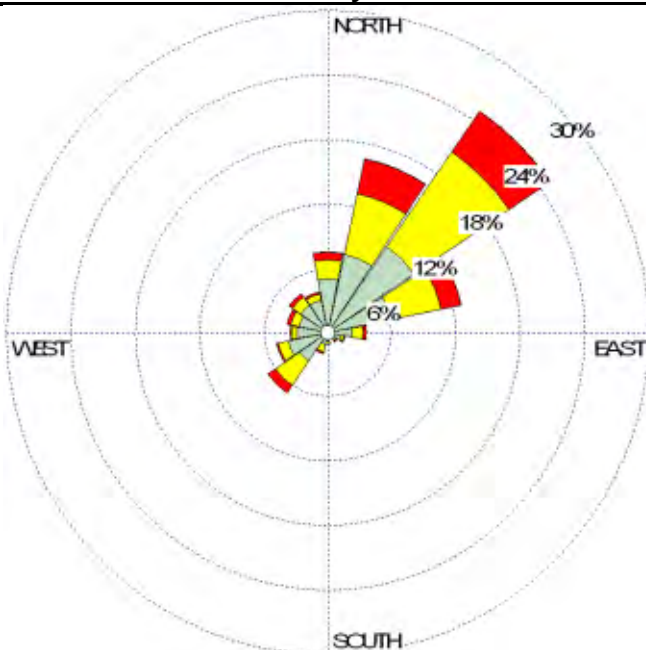
Wind Speed [m/s]



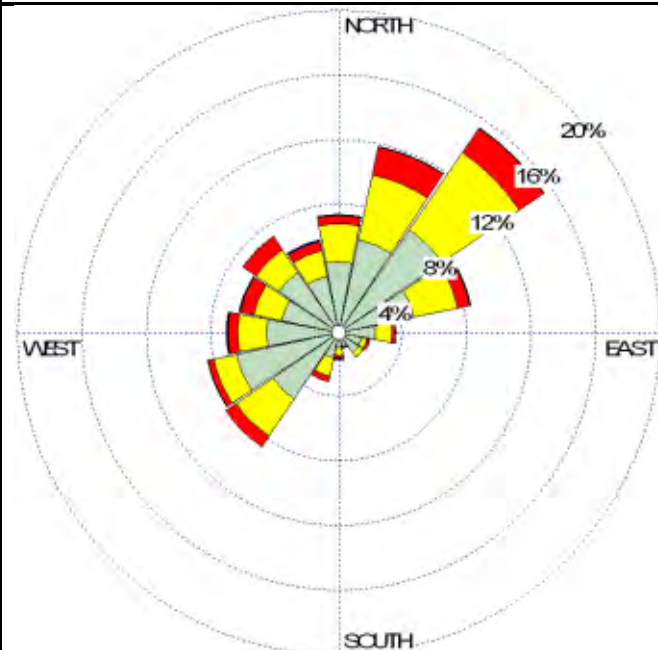
May



June



July



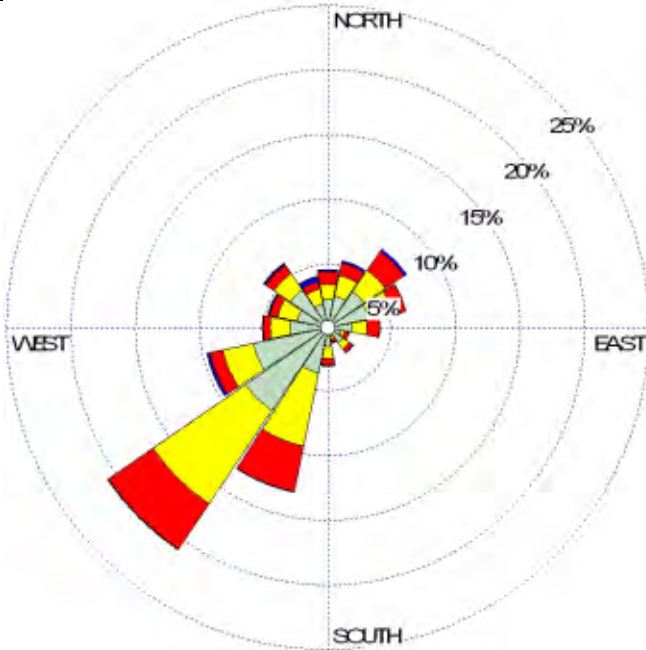
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

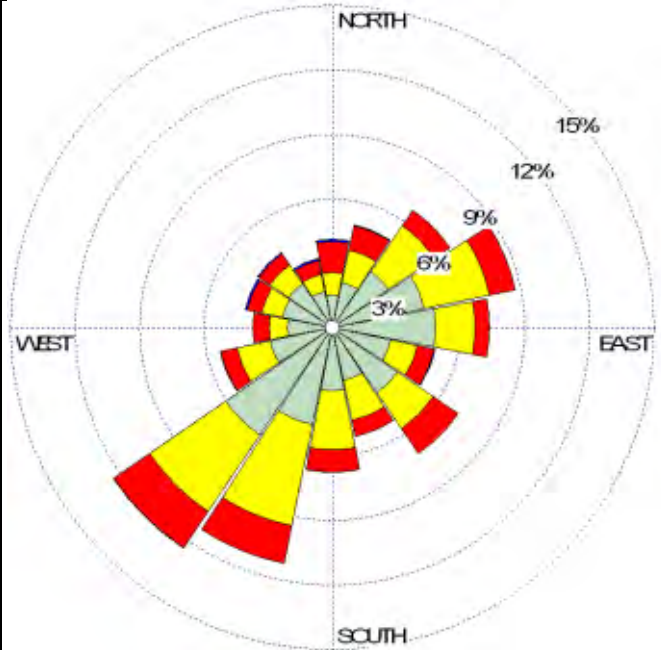
Typical Wind Rose for Each Month

Ocracoke Beach (Ocracoke Island)
(September - December)

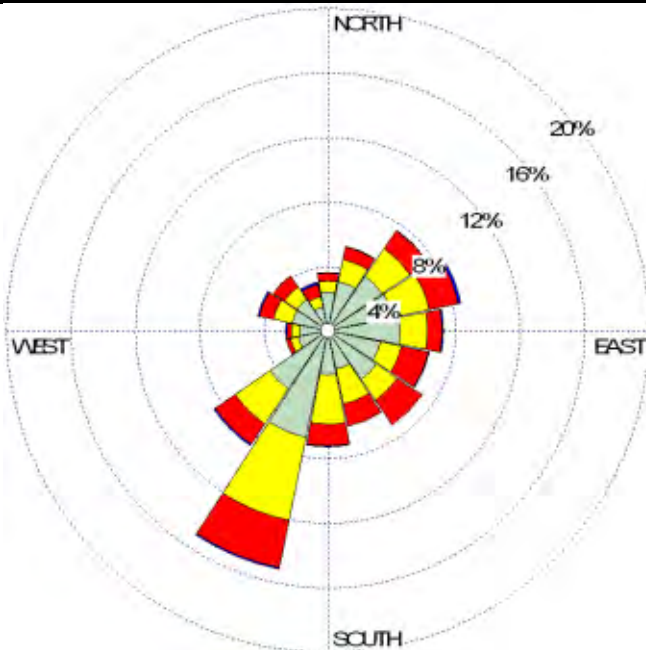
Wind Speed [m/s]



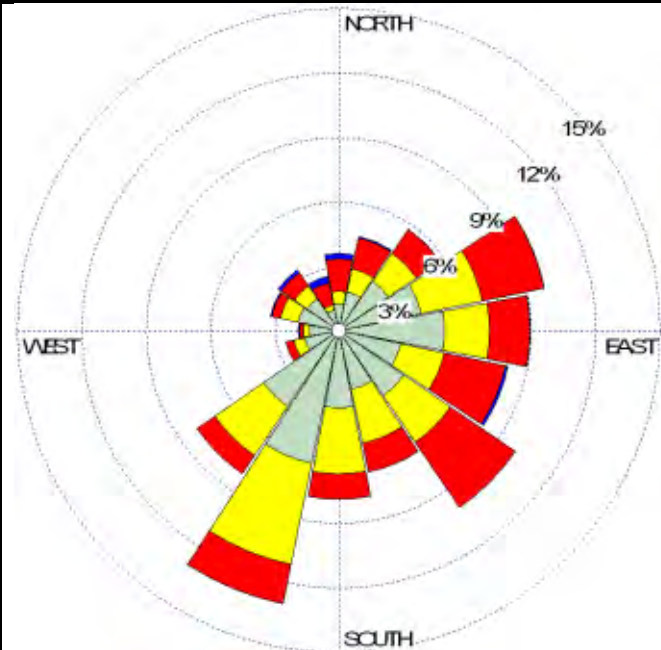
September



October



November



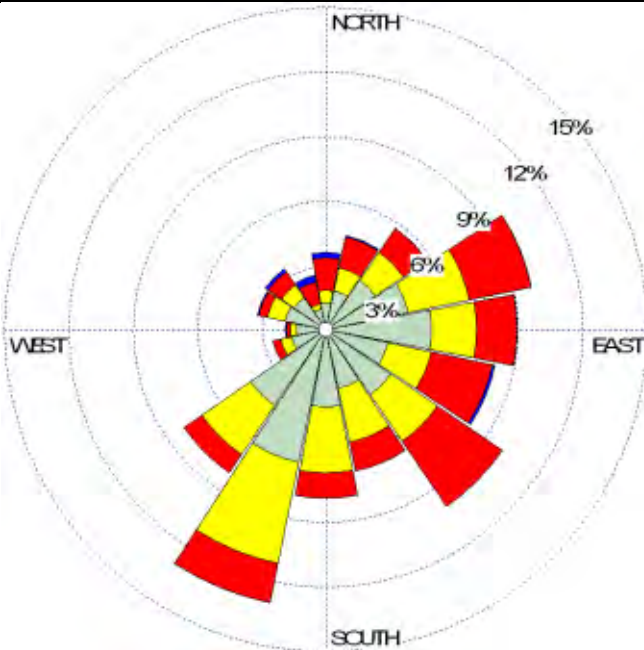
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

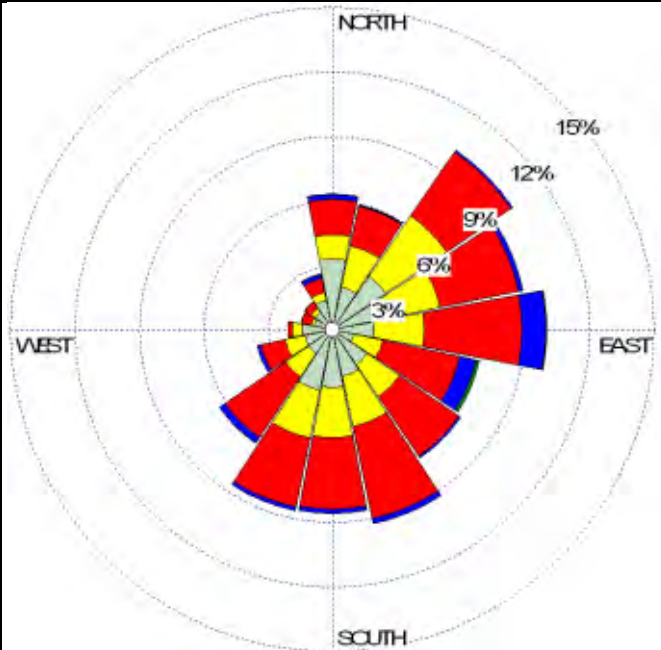
Typical Wind Rose for Each Month

Cape Lookout Lighthouse (January - April)

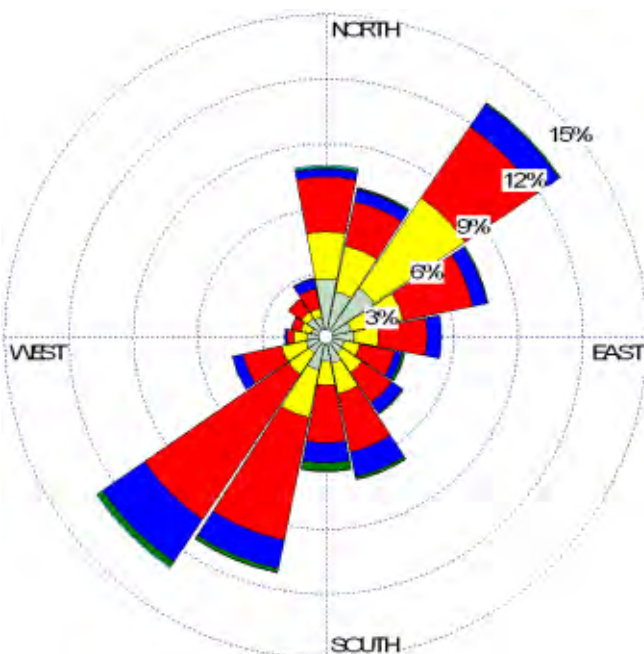
Wind Speed [m/s]



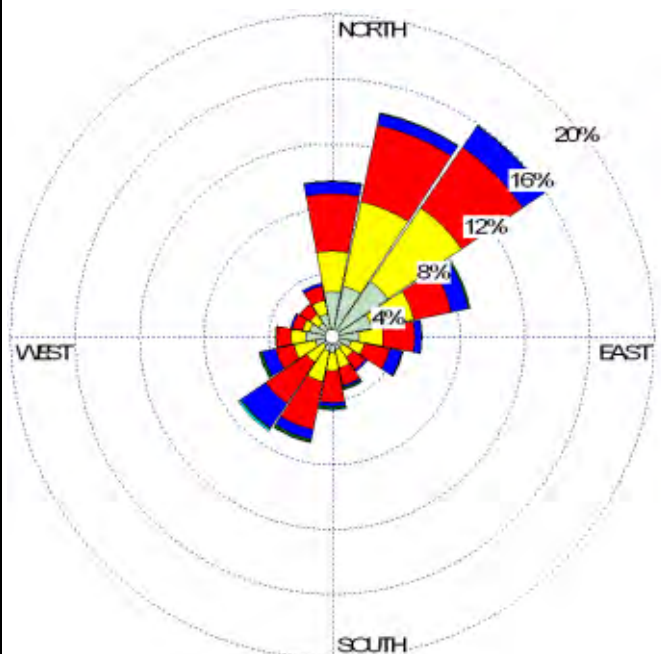
January



February



March



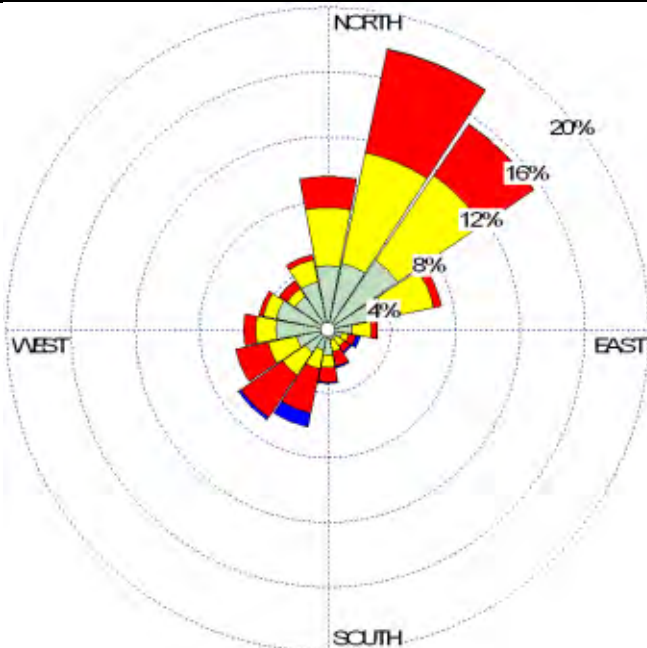
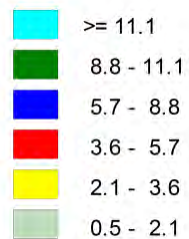
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

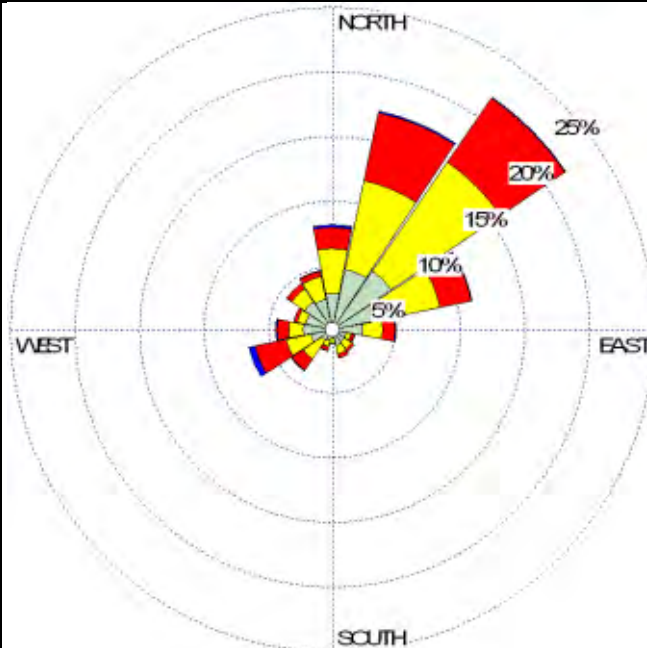
Typical Wind Rose for Each Month

Cape Lookout Lighthouse (May - August)

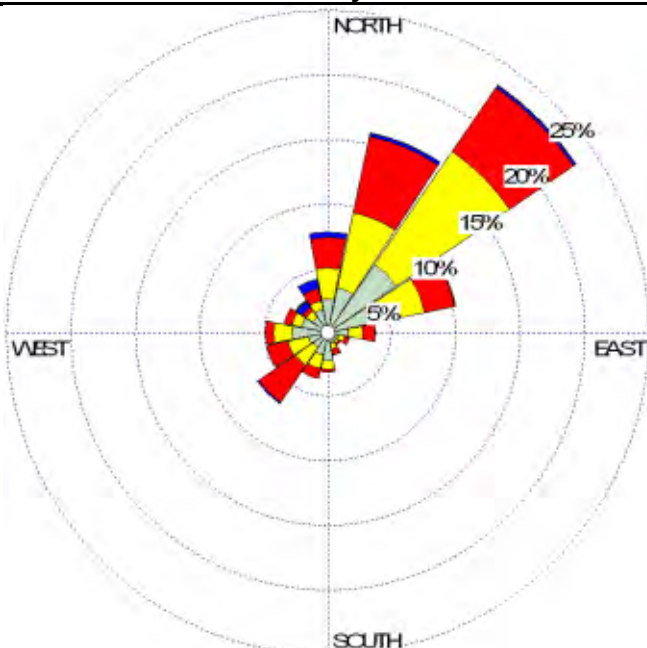
Wind Speed [m/s]



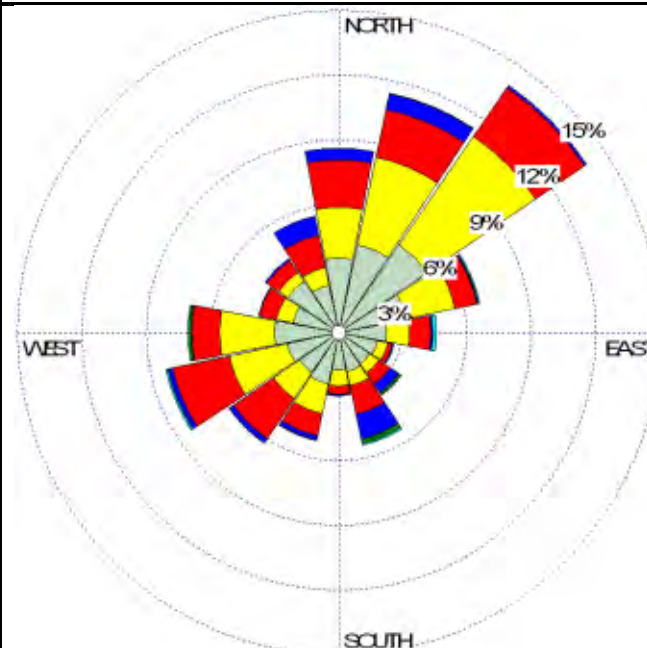
May



June



July



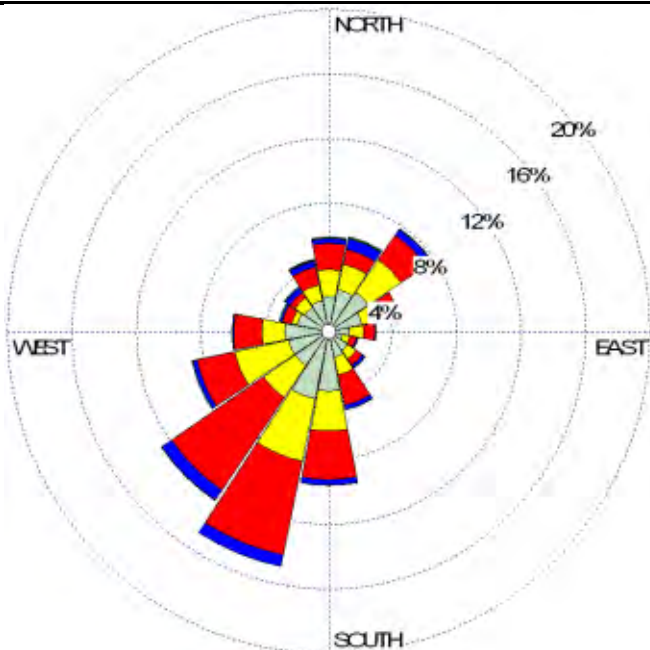
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

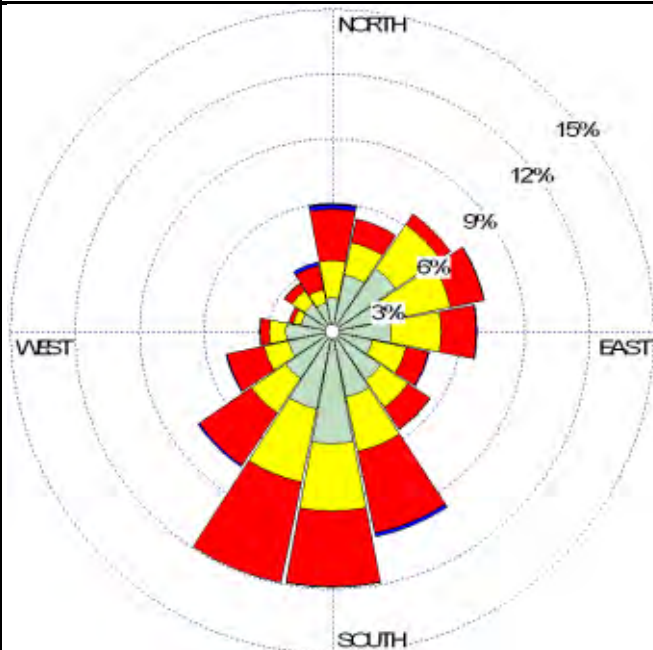
Typical Wind Rose for Each Month

Cape Lookout Lighthouse (September - December)

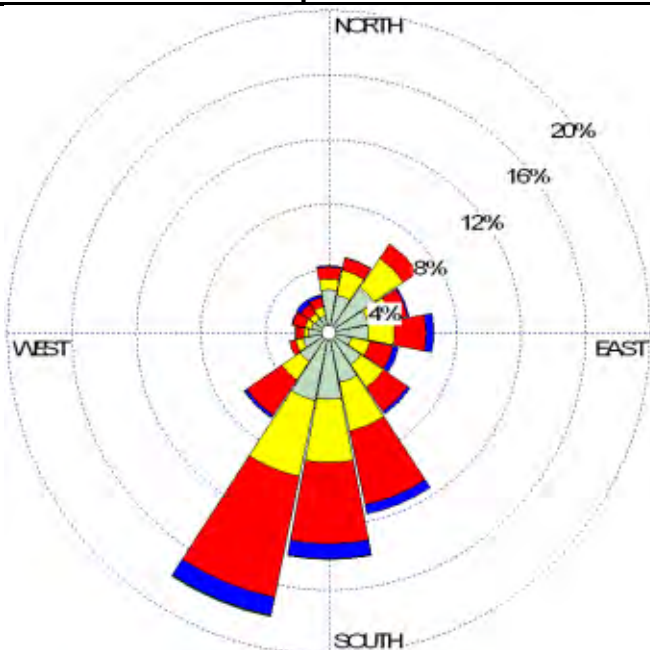
Wind Speed [m/s]



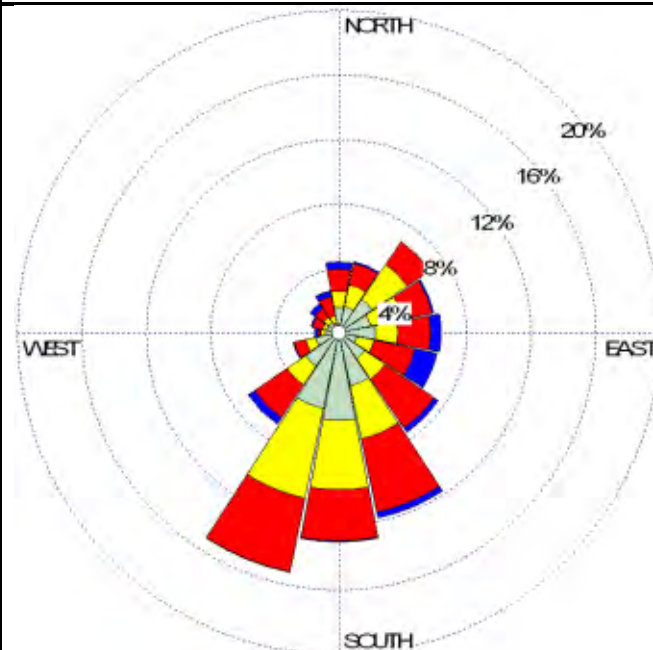
September



October



November



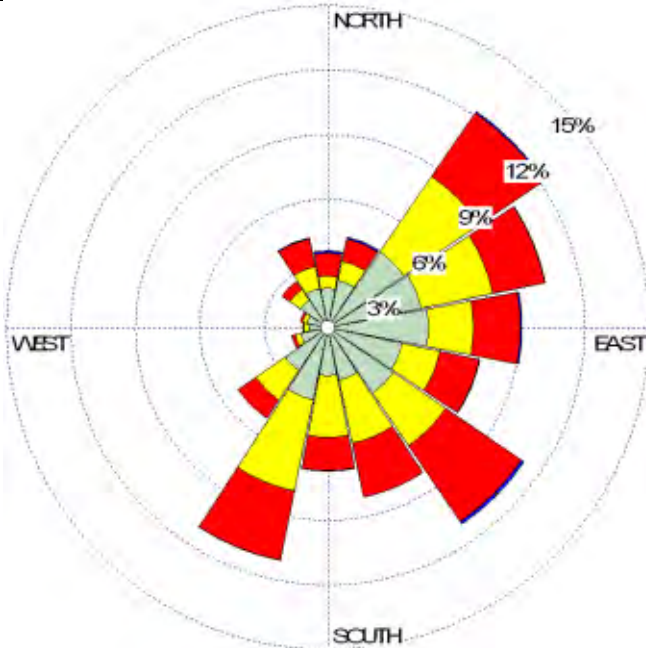
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

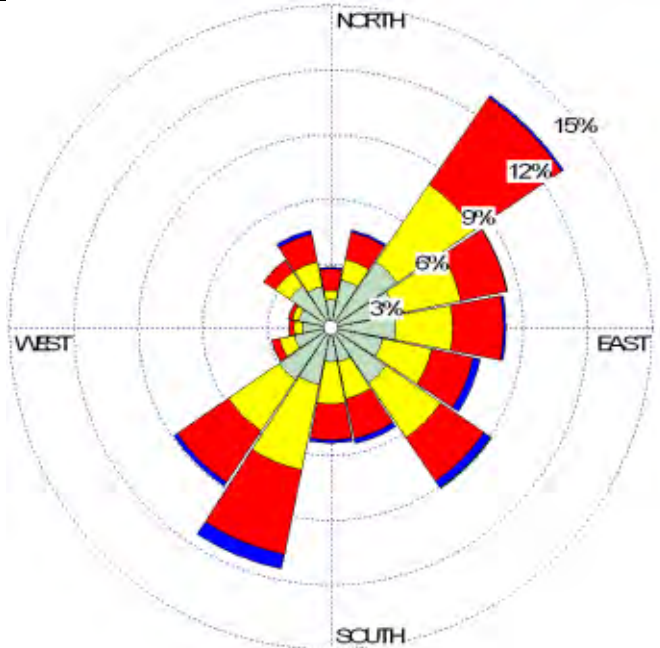
Typical Wind Rose for Each Month

Portsmouth Life Saving Station Tower
January - April

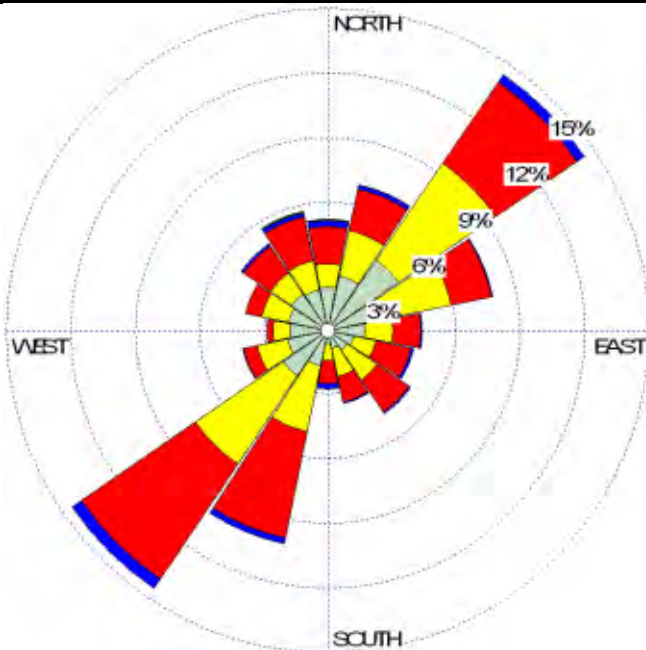
Wind Speed [m/s]



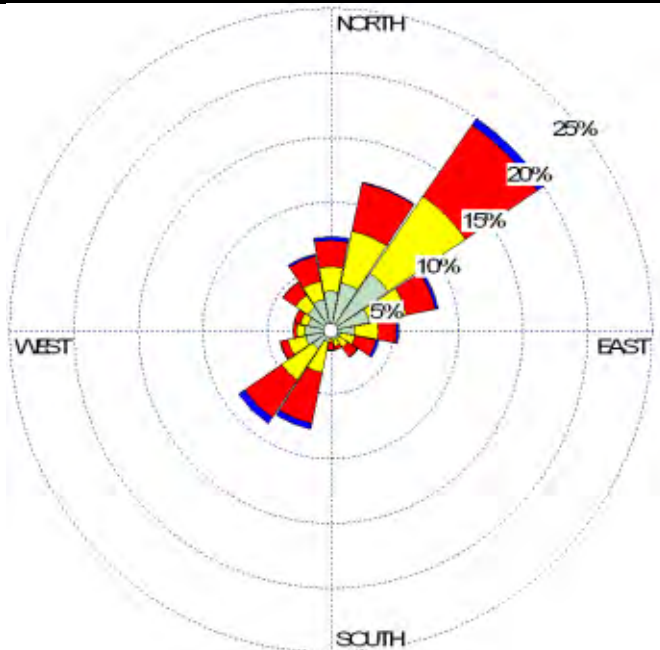
January



February



March



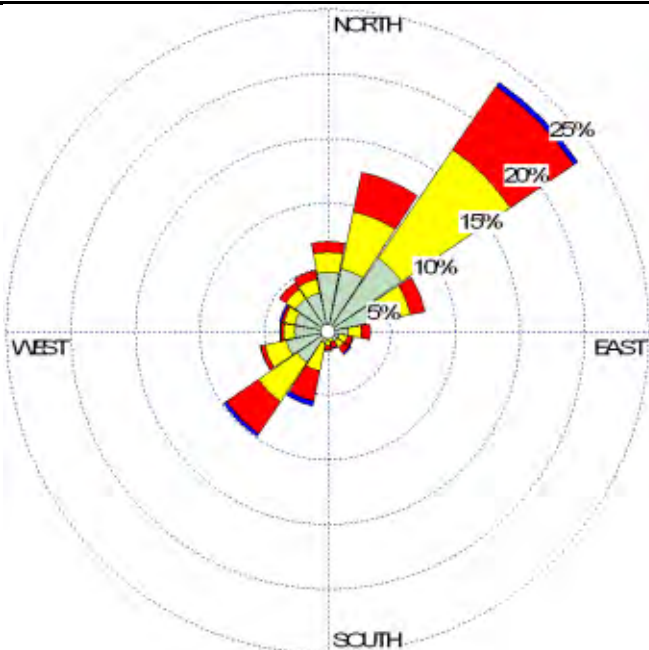
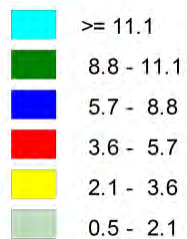
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

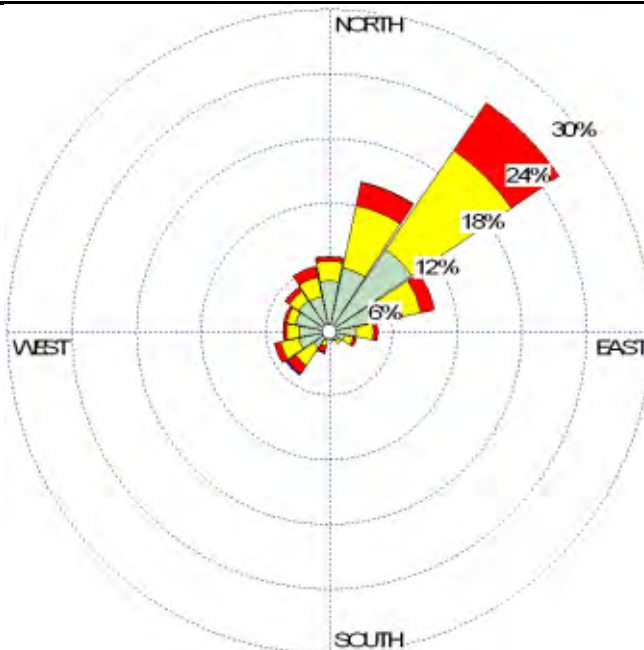
Typical Wind Rose for Each Month

Portsmouth Life Saving Station Tower
(May - August)

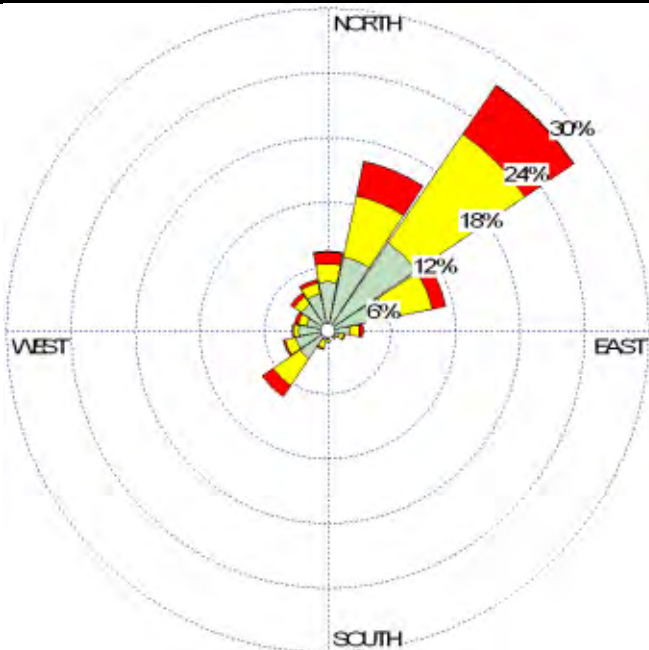
Wind Speed [m/s]



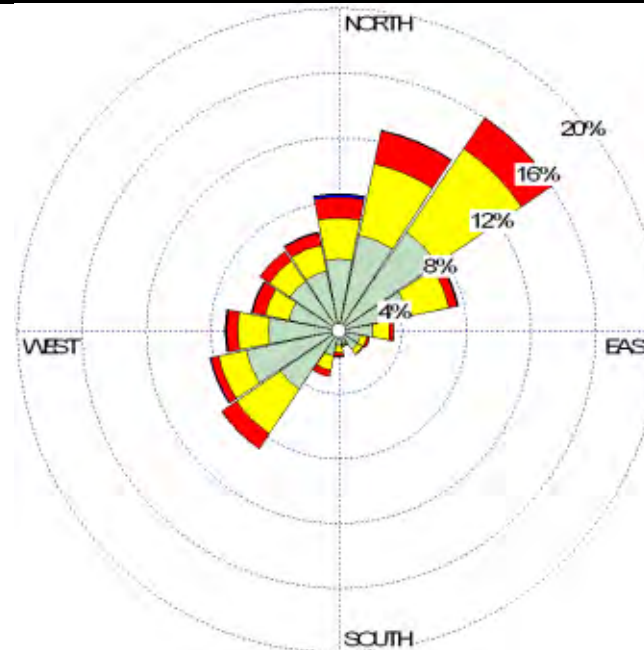
May



June



July



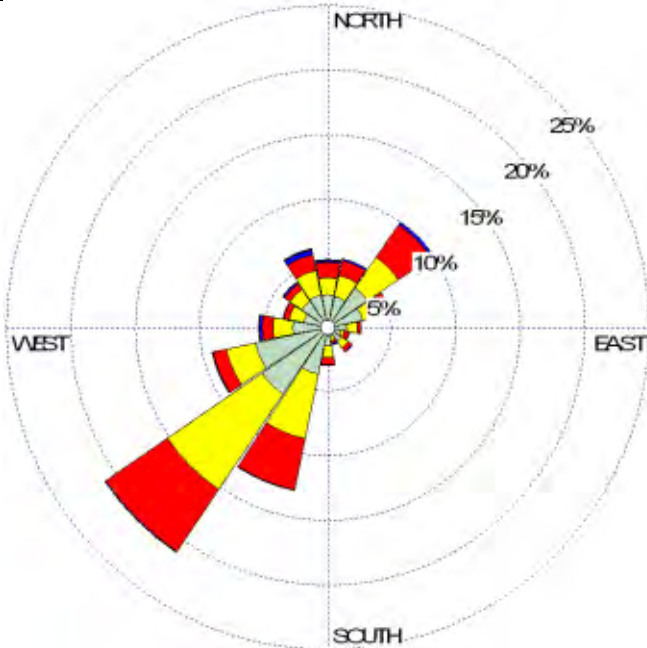
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

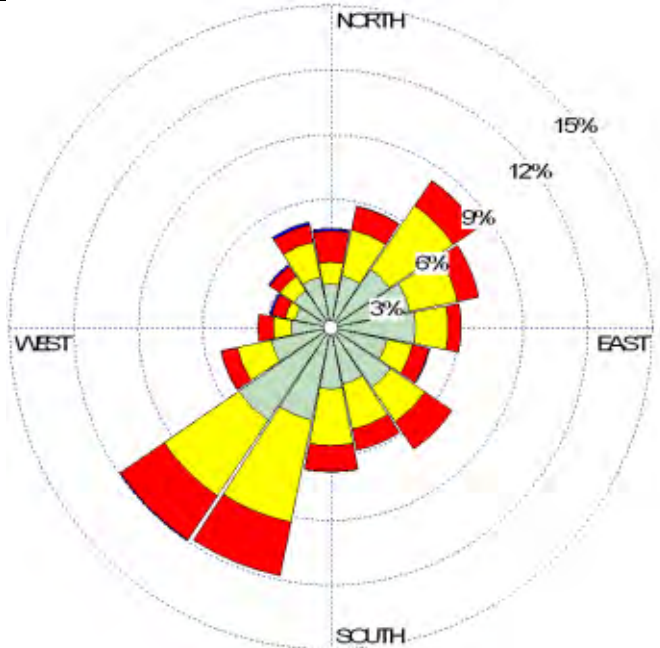
Typical Wind Rose for Each Month

Portsmouth Life Saving Station Tower
(September - December)

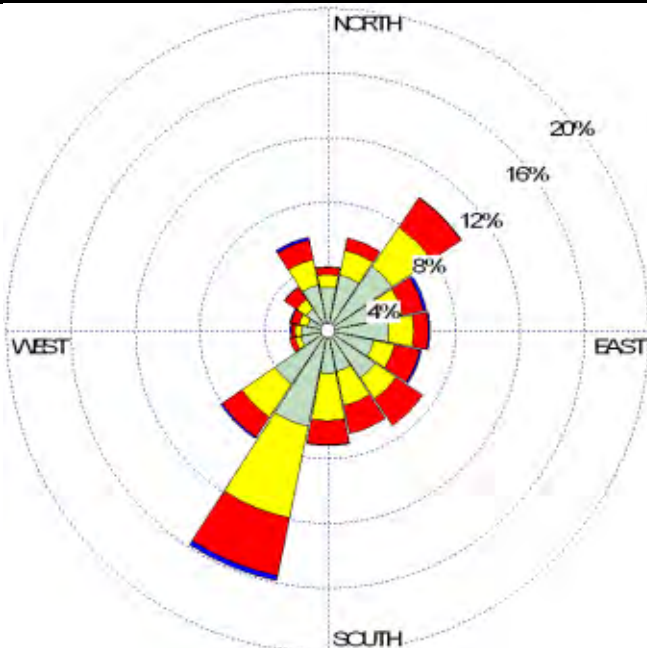
Wind Speed [m/s]



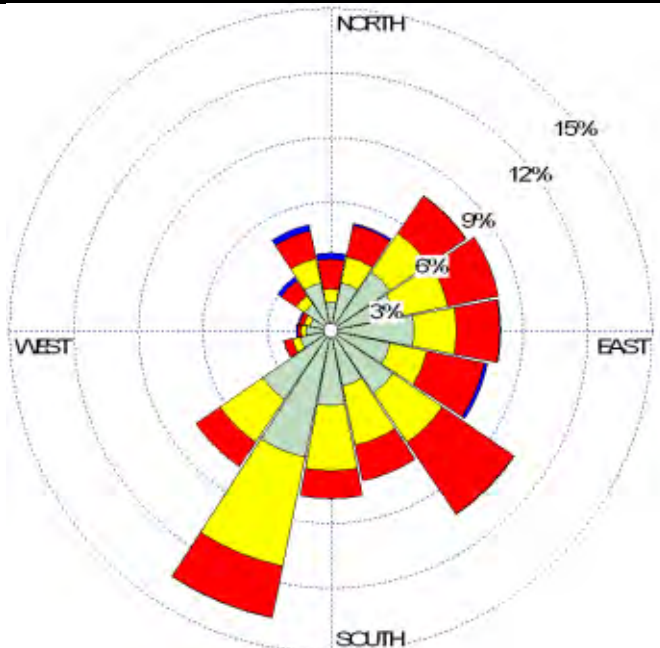
September



October



November



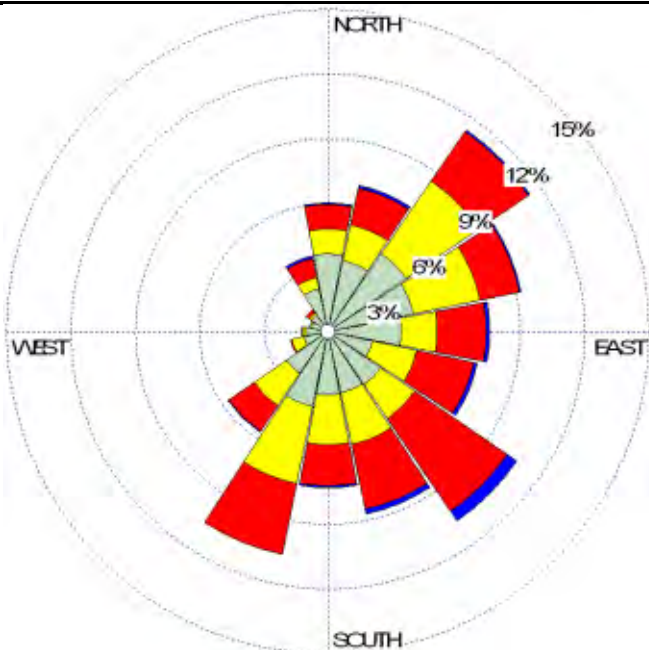
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

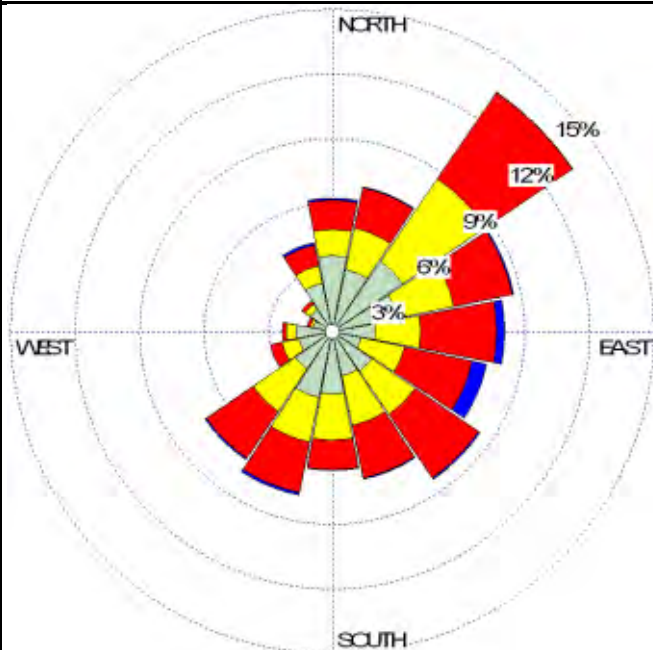
Typical Wind Rose for Each Month

Great Island Camps (January - April)

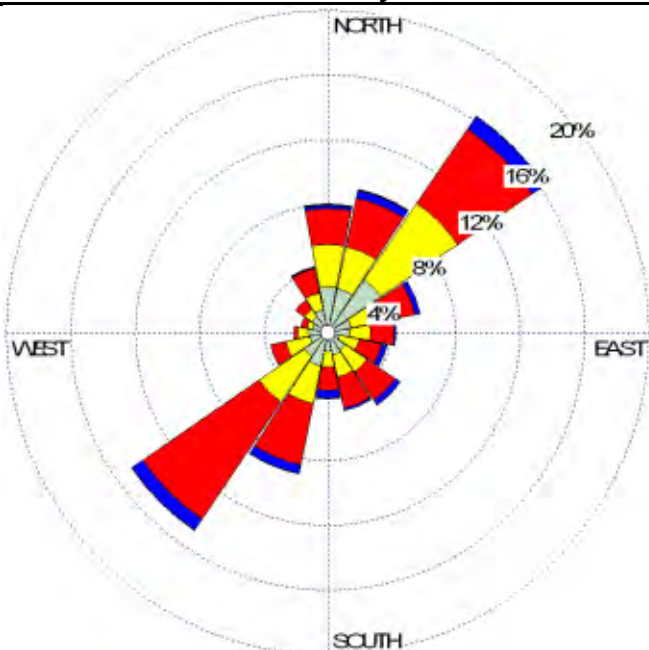
Wind Speed [m/s]



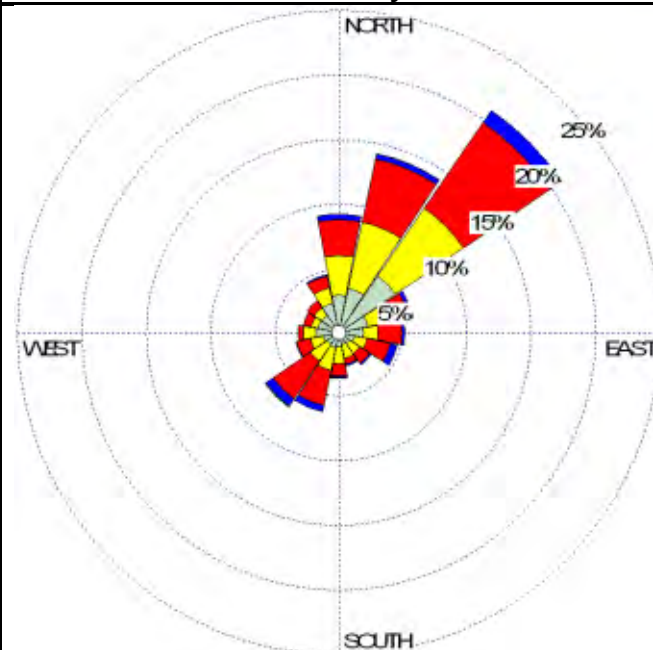
January



February



March

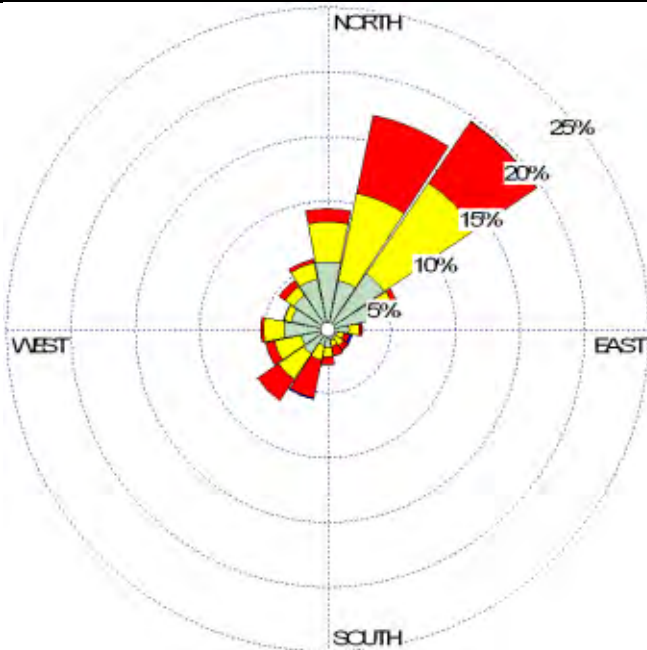


April

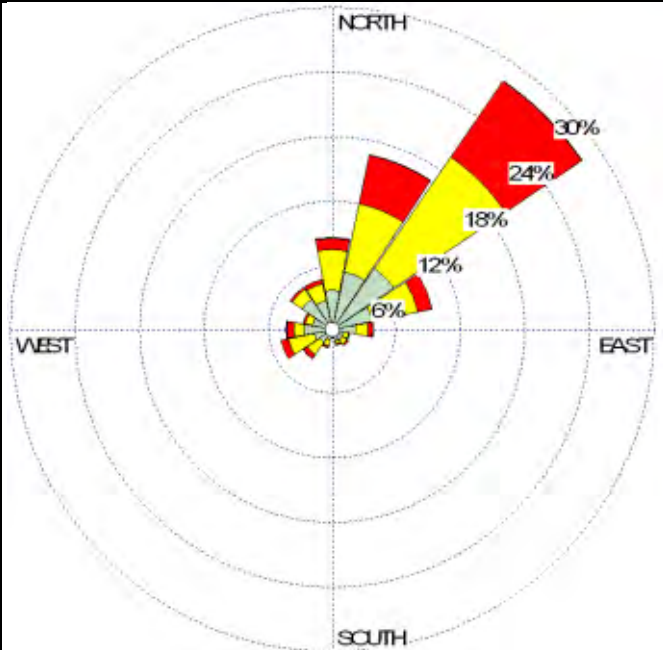
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Great Island Camps (May - August)

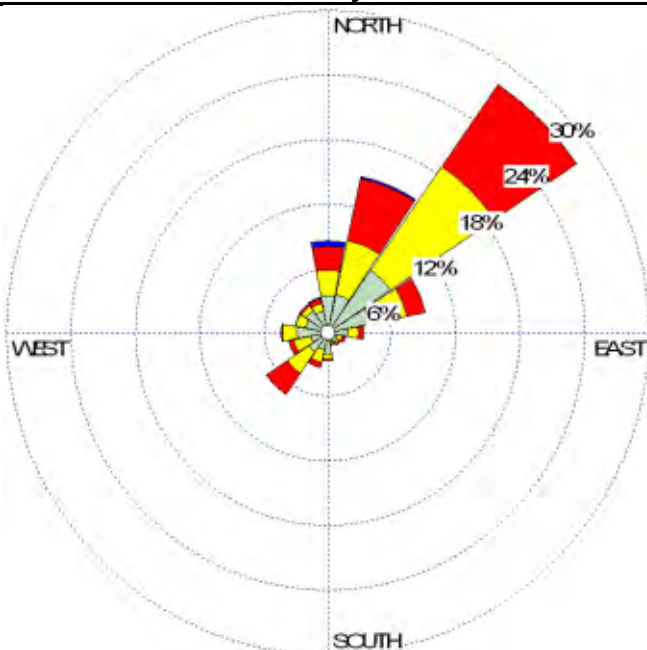
Wind Speed [m/s]



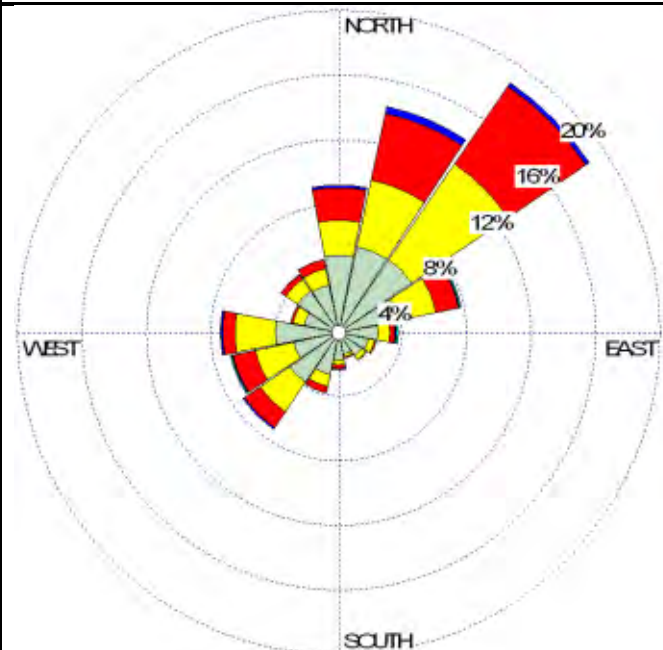
May



June



July



August

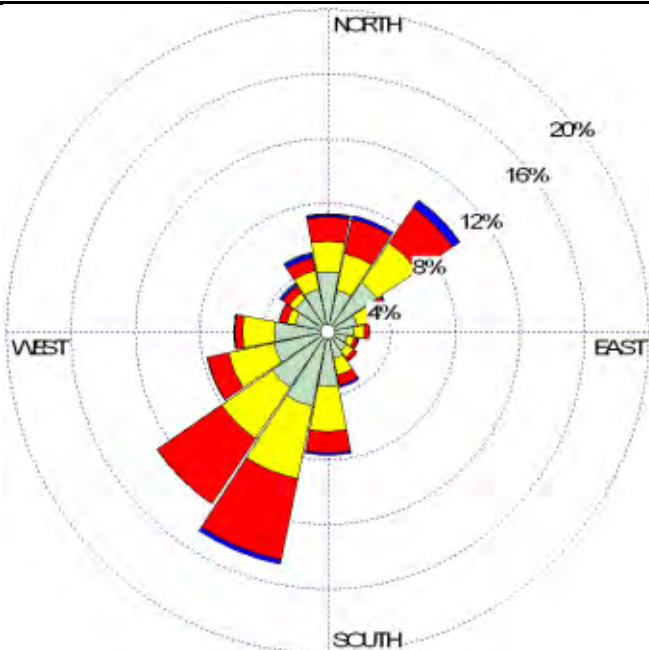
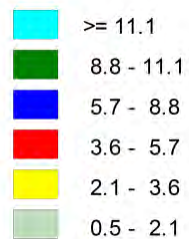
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

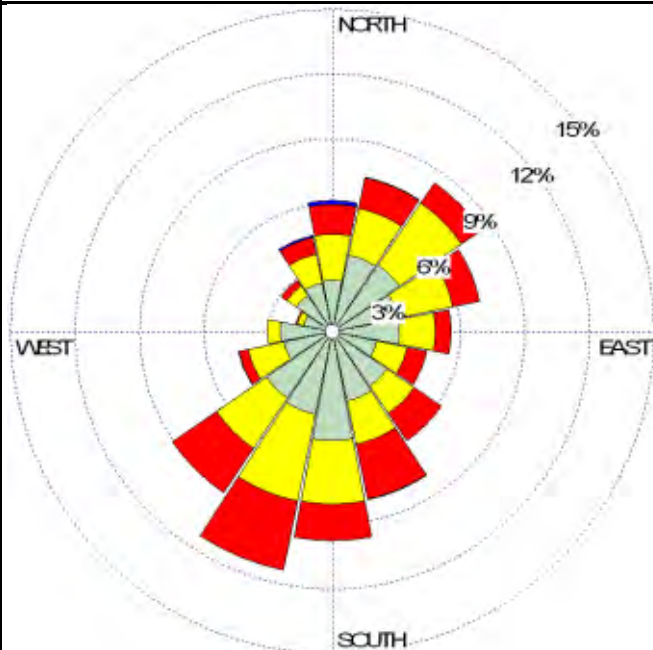
Great Island Camps

(September - December)

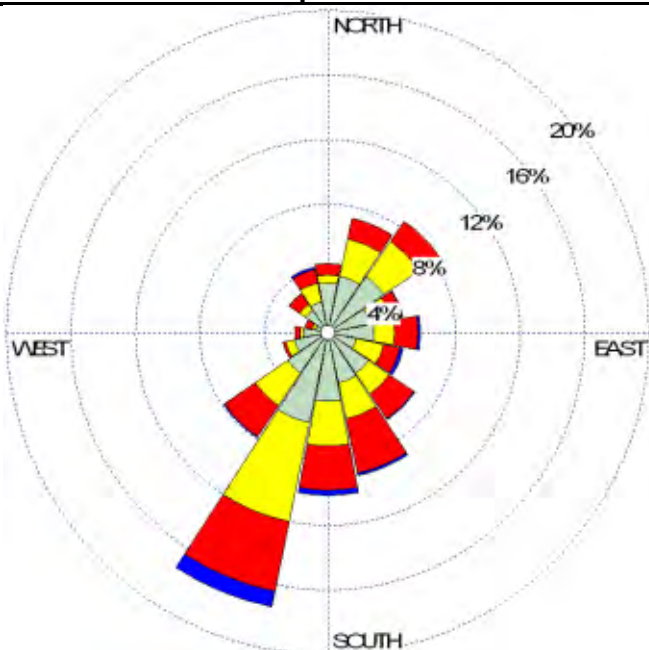
Wind Speed [m/s]



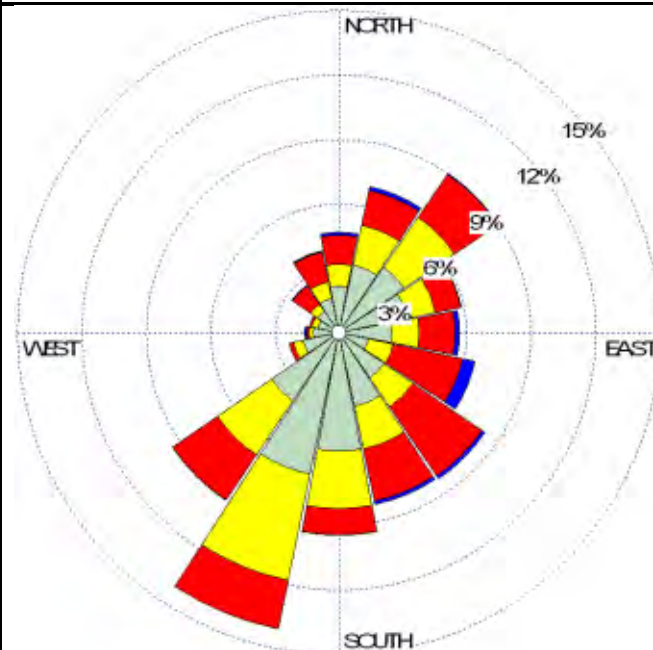
September



October



November



December

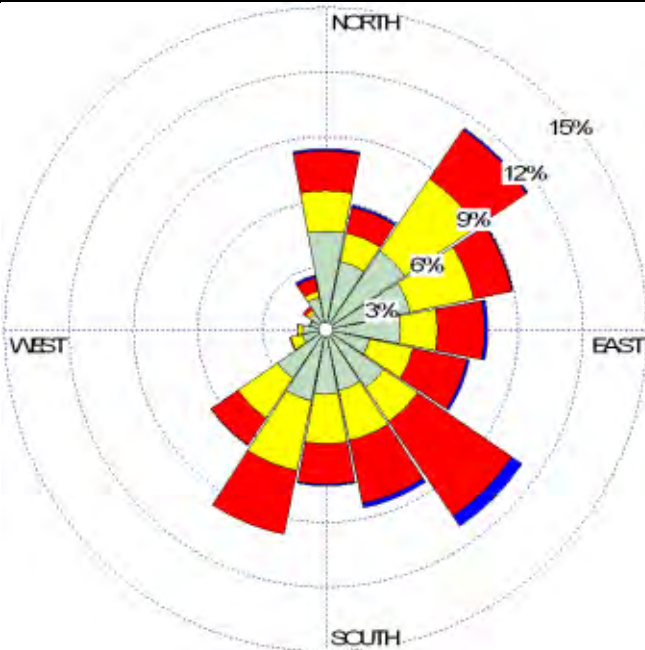
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

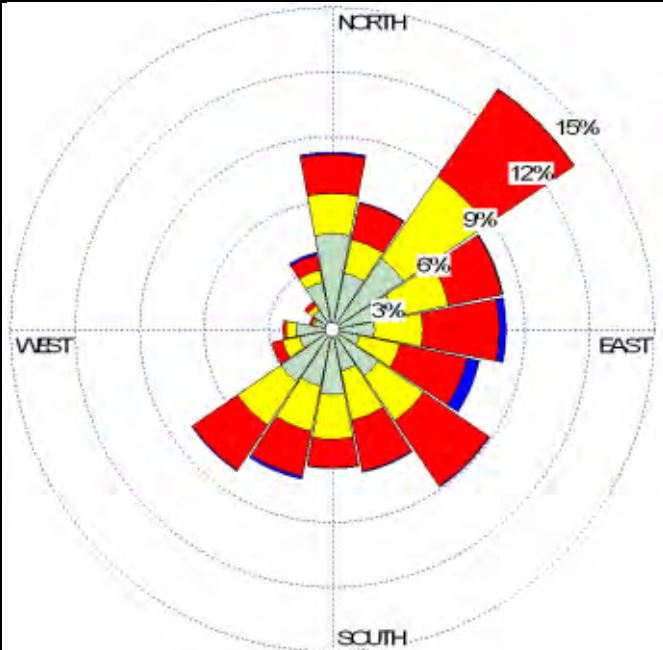
Long Point Camps

(January - April)

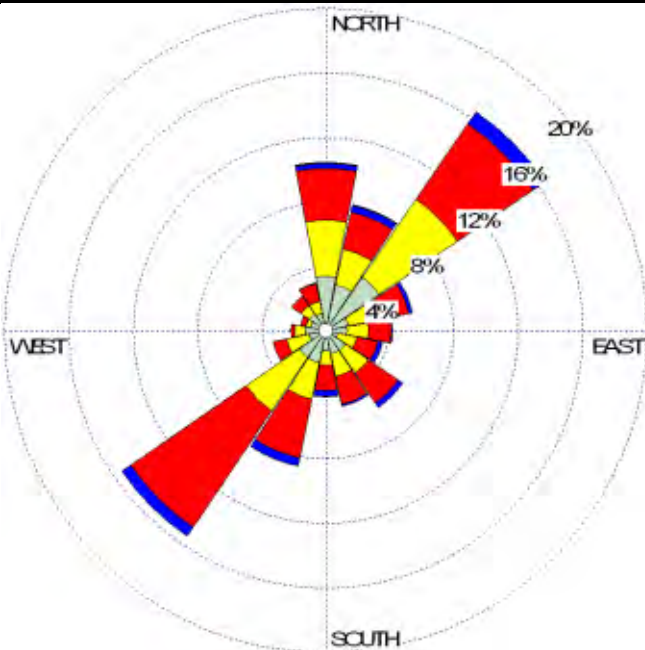
Wind Speed [m/s]



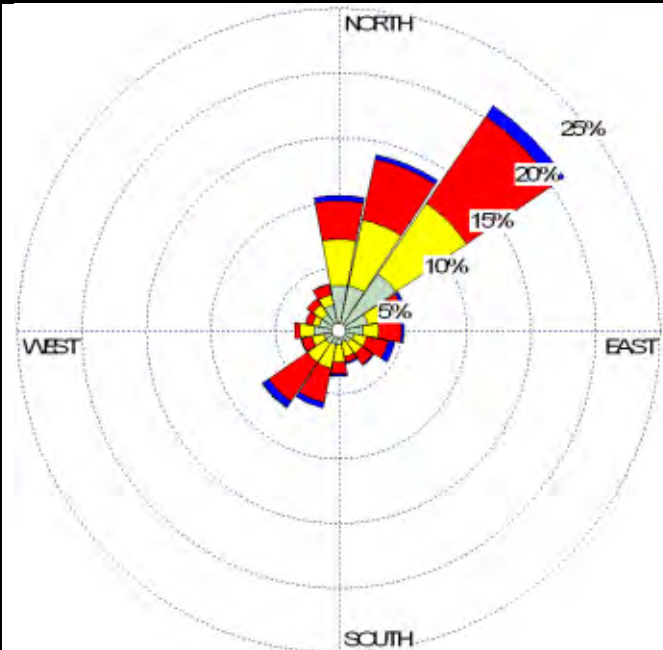
January



February



March



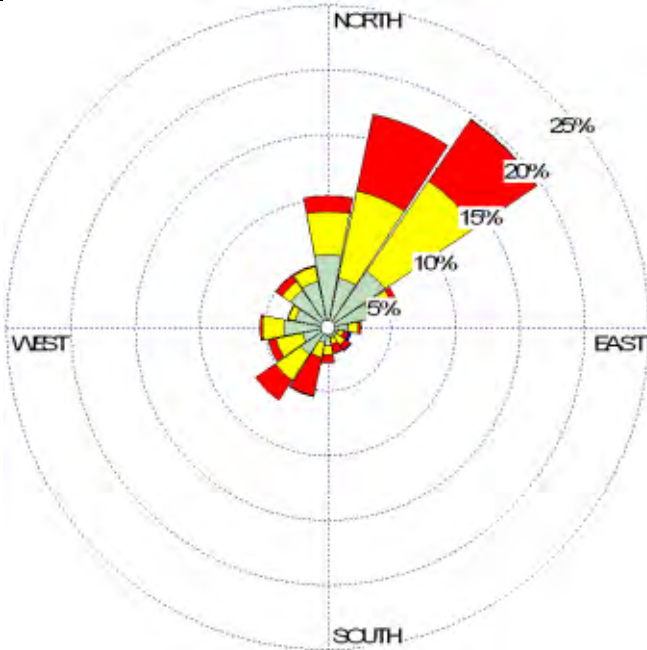
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

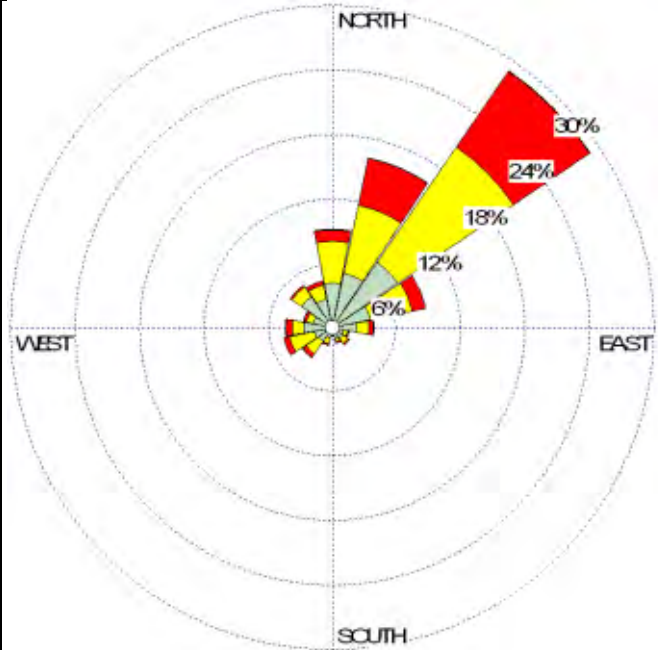
Typical Wind Rose for Each Month

Long Point Camps (May - August)

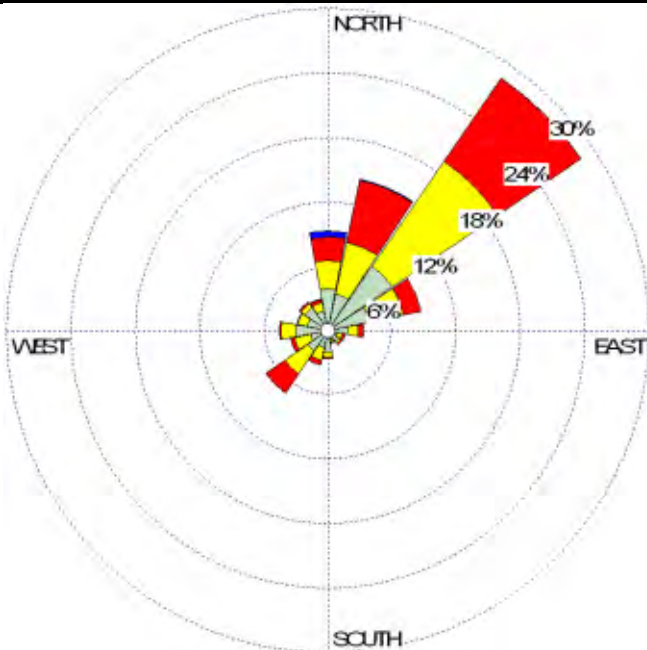
Wind Speed [m/s]



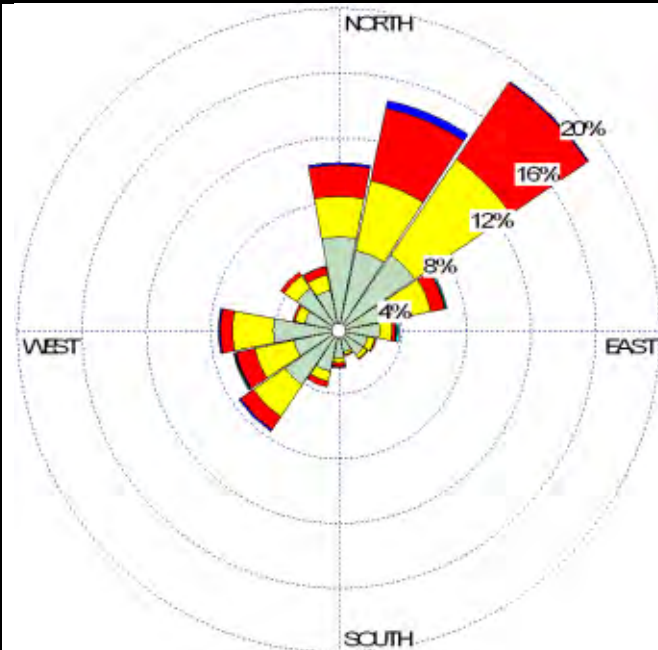
May



June



July



August

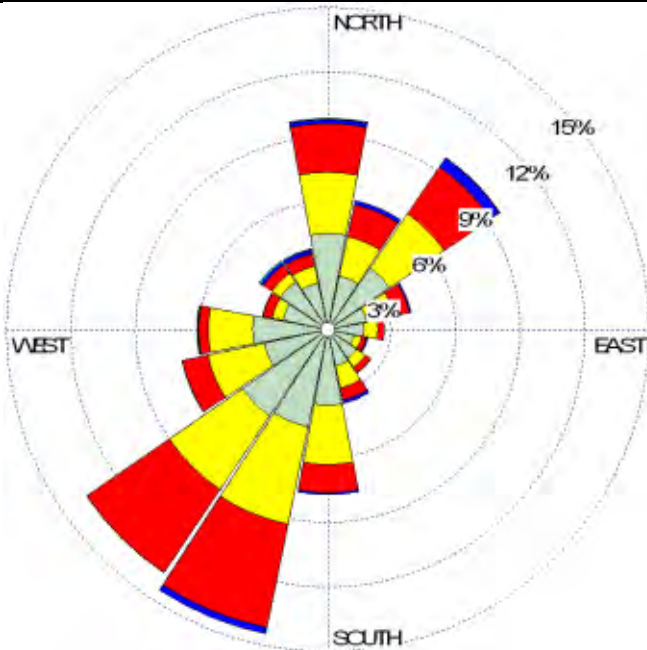
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

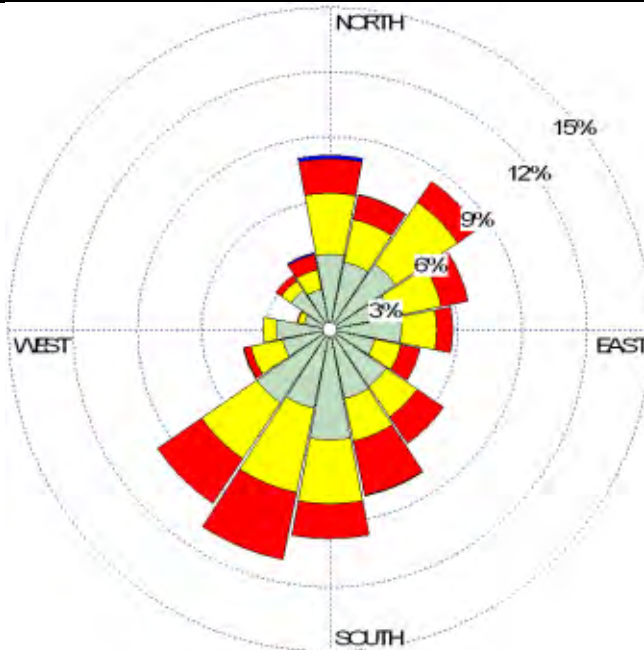
Long Point Camps

(September - December)

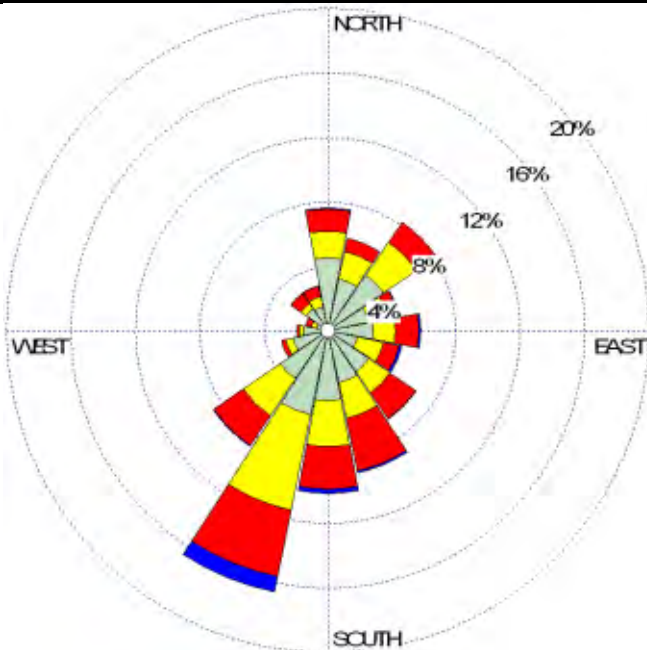
Wind Speed [m/s]



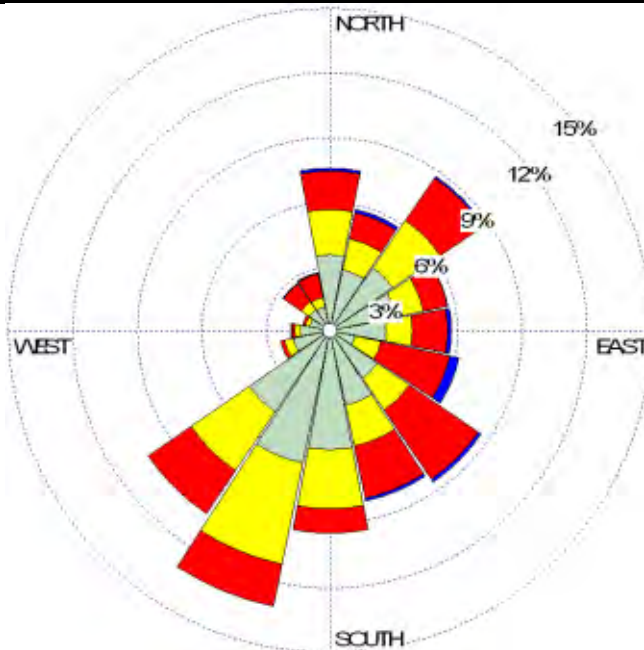
September



October



November



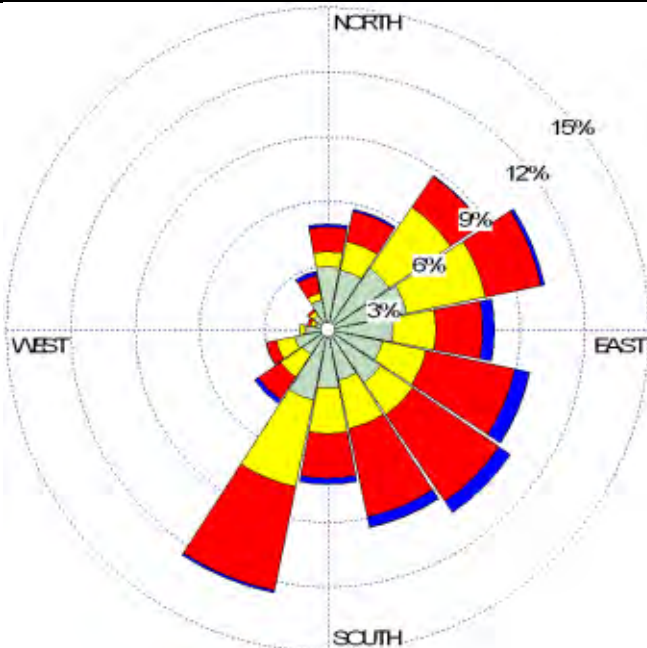
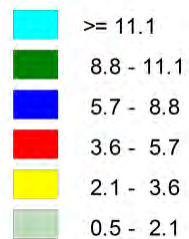
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

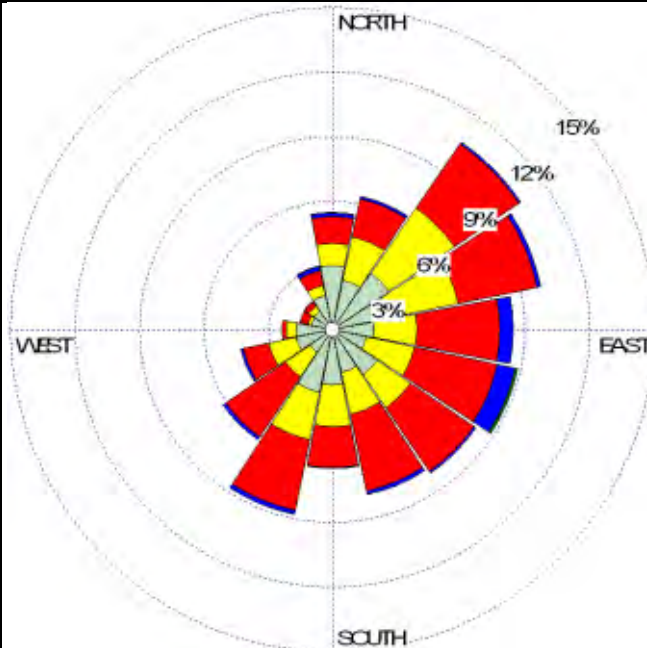
Typical Wind Rose for Each Month

Cape Point (January - April)

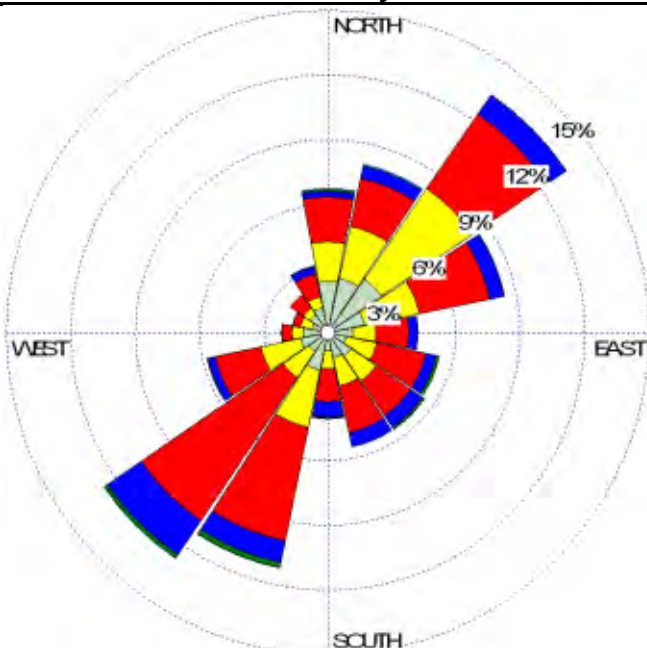
Wind Speed [m/s]



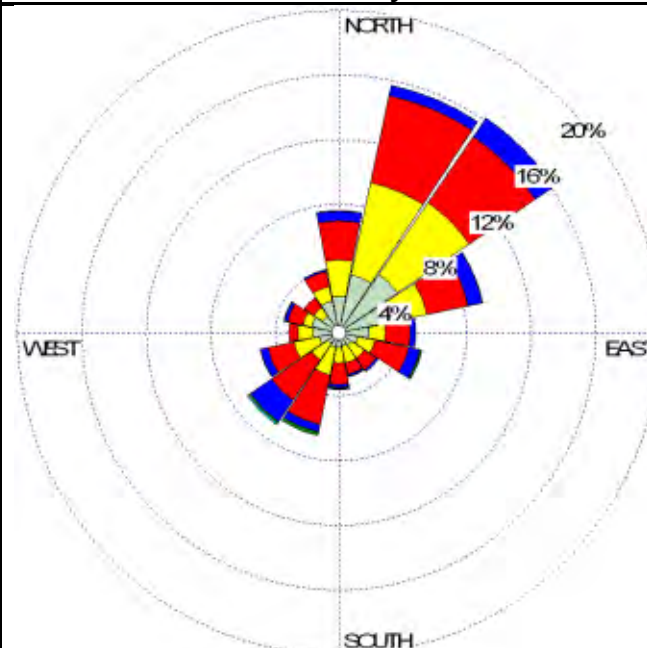
January



February



March

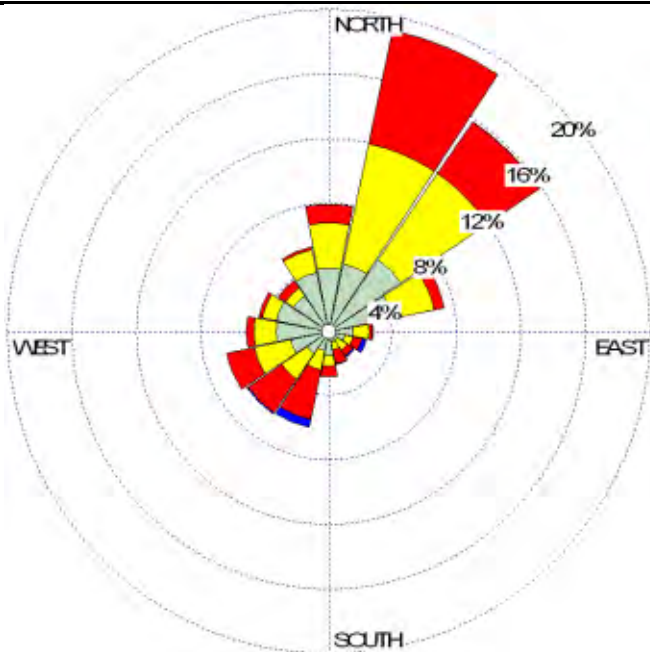
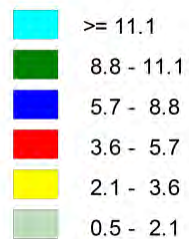


April

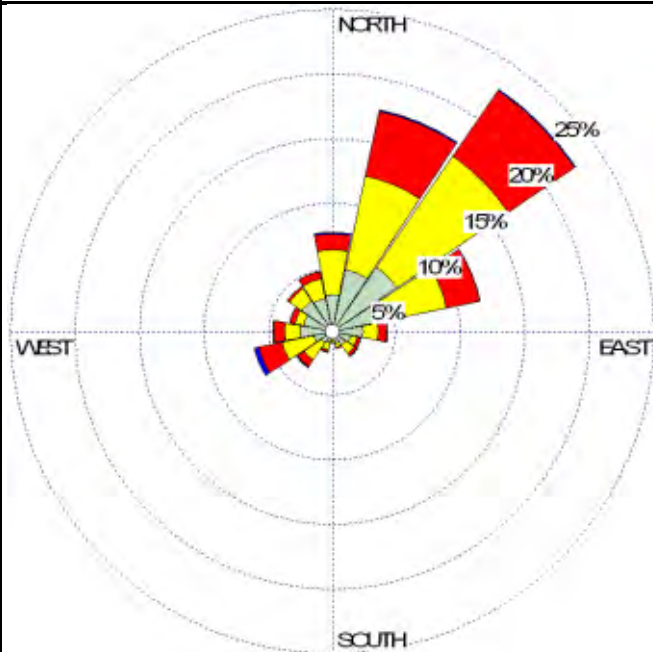
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Cape Point (May - August)

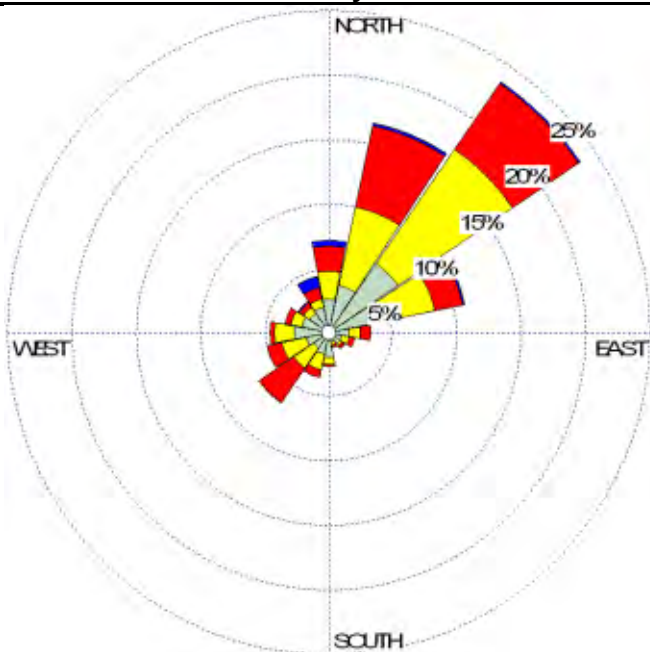
Wind Speed [m/s]



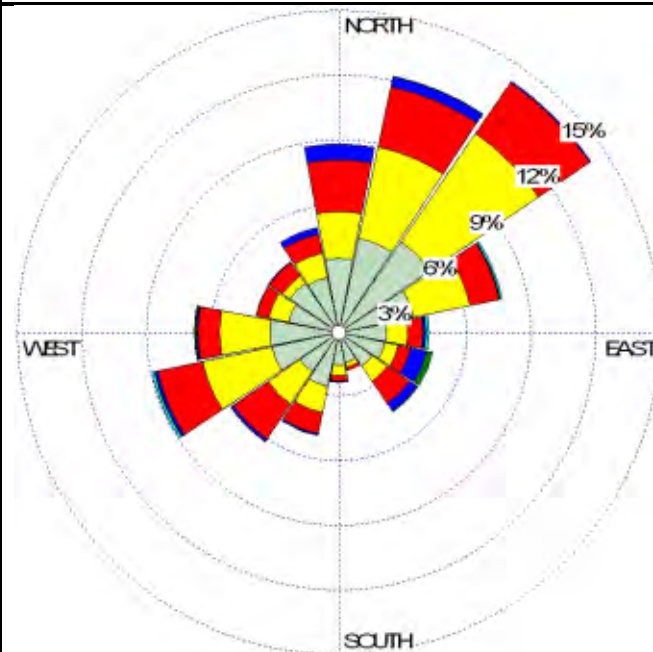
May



June



July



August

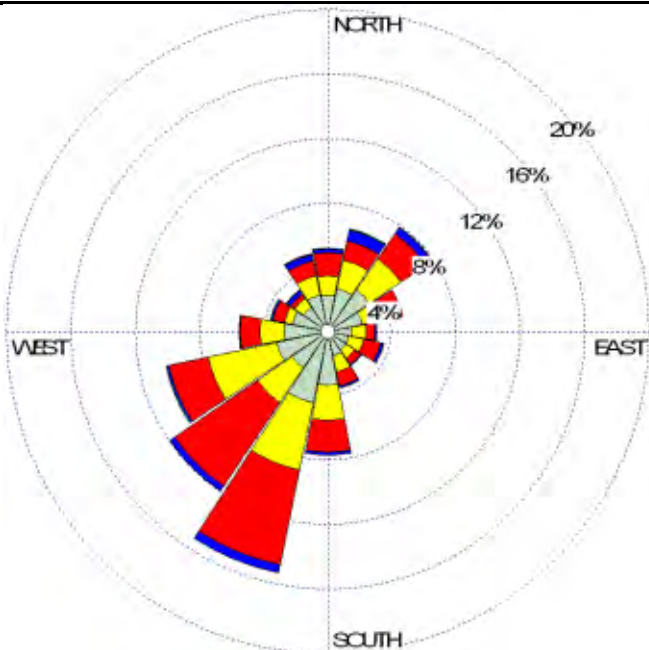
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

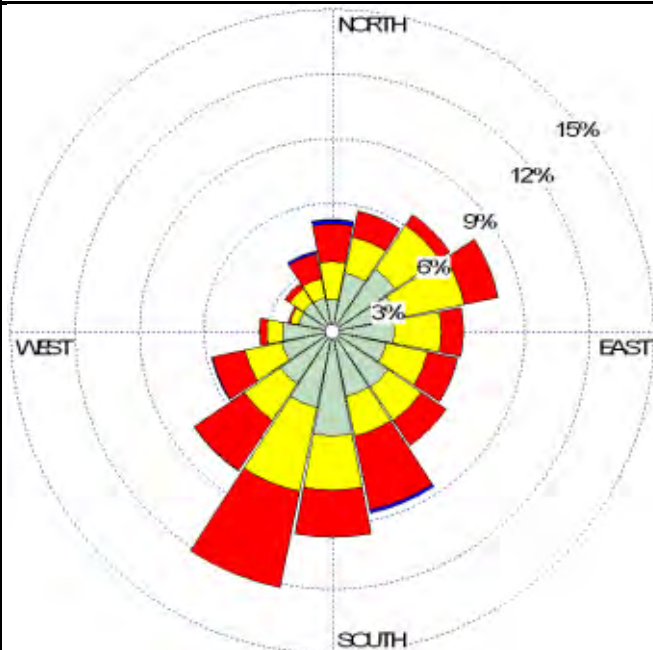
Cape Point

(September - December)

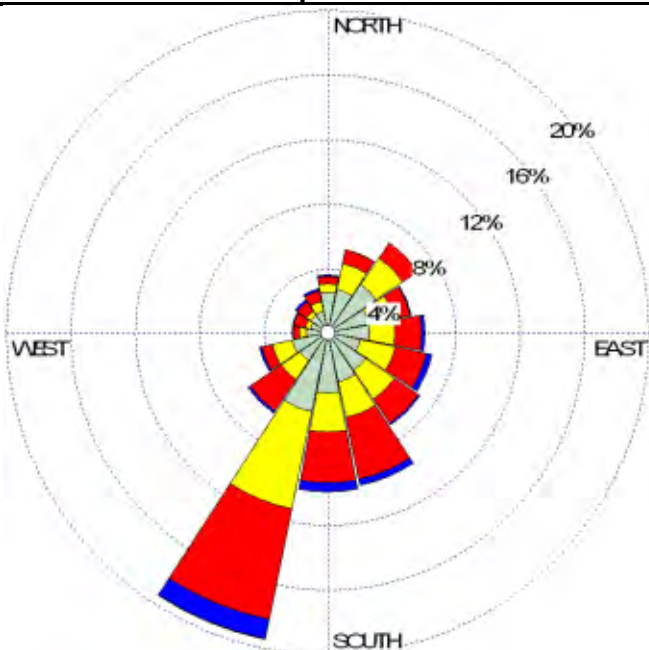
Wind Speed [m/s]



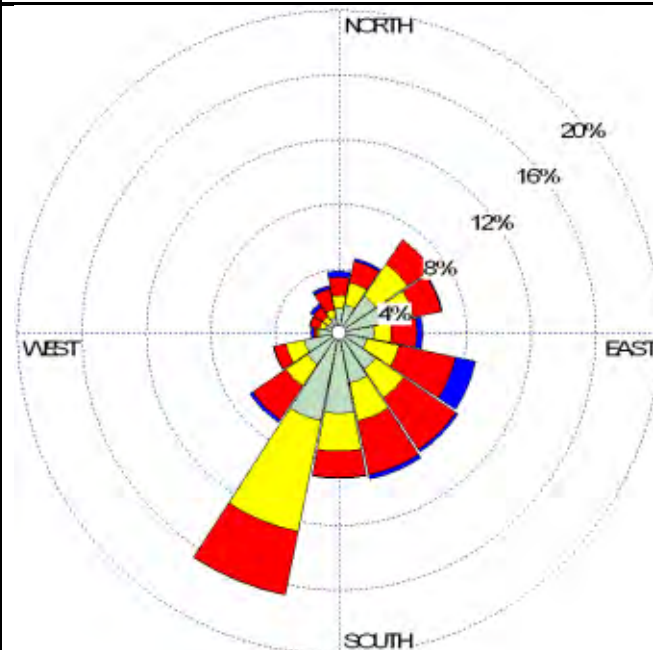
September



October



November



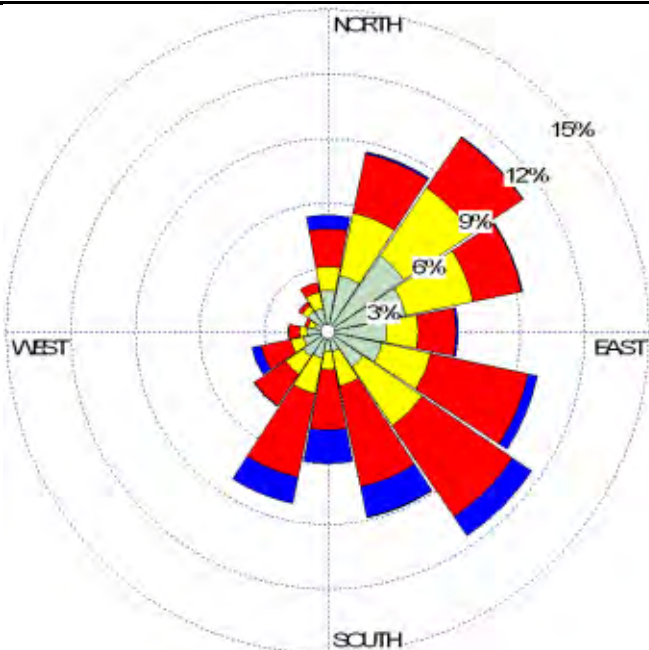
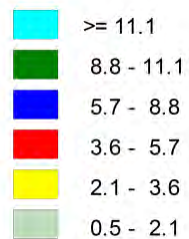
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

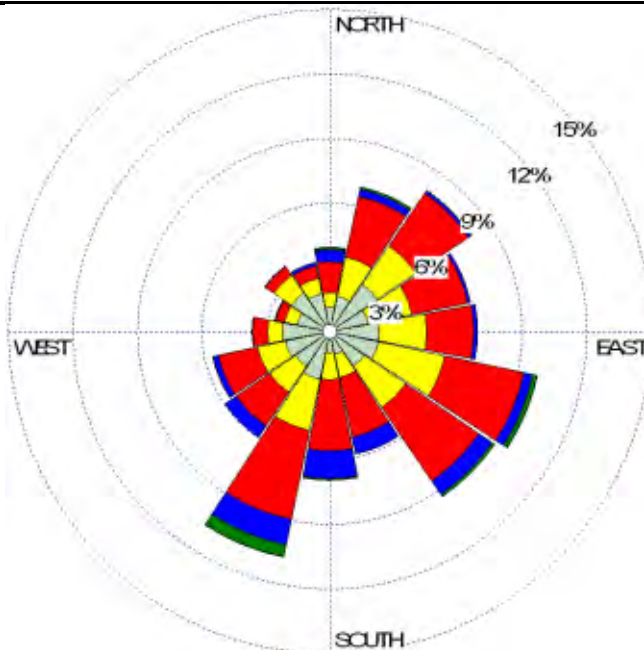
Typical Wind Rose for Each Month

Corolla Lighthouse (January - April)

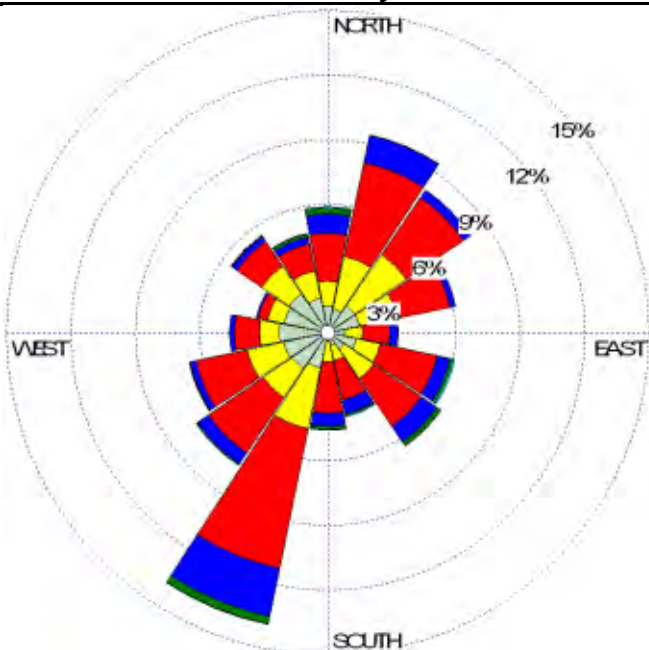
Wind Speed [m/s]



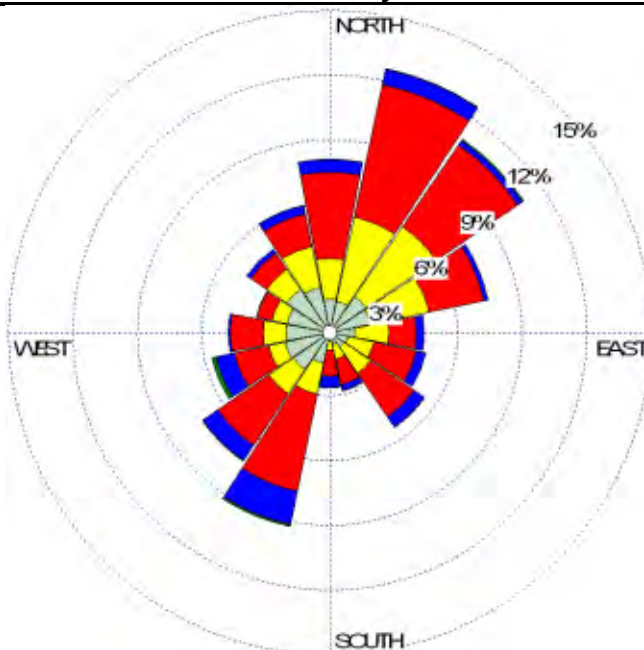
January



February



March



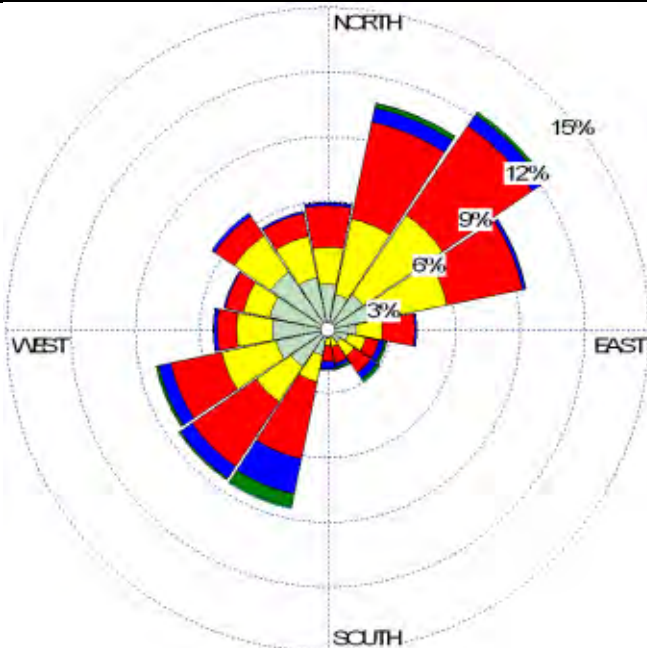
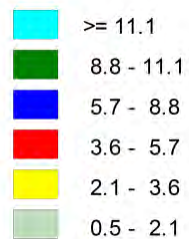
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

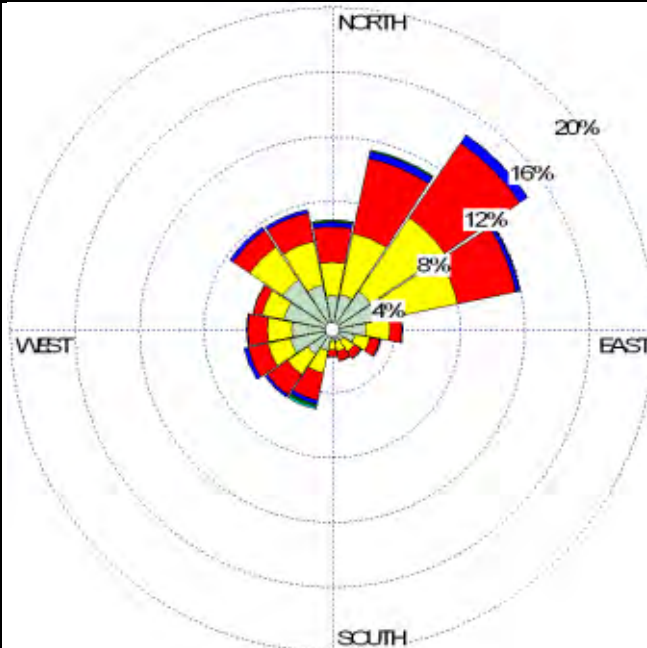
Typical Wind Rose for Each Month

Corolla Lighthouse (May - August)

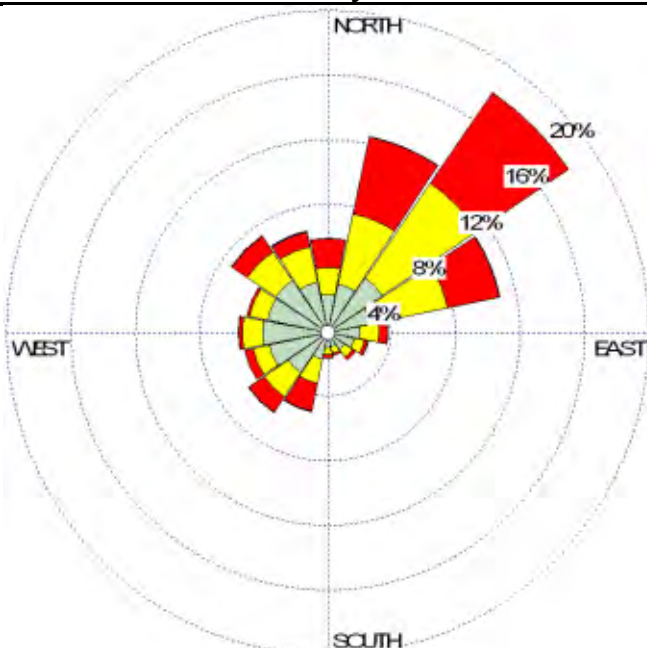
Wind Speed [m/s]



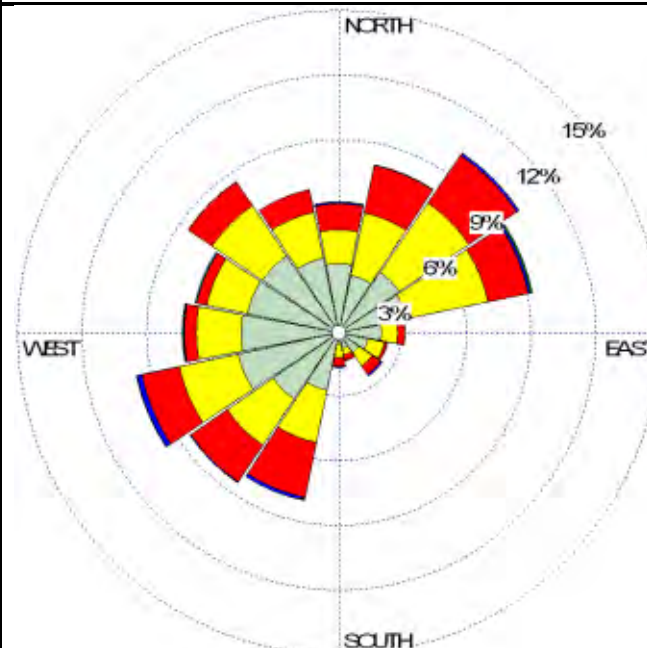
May



June



July



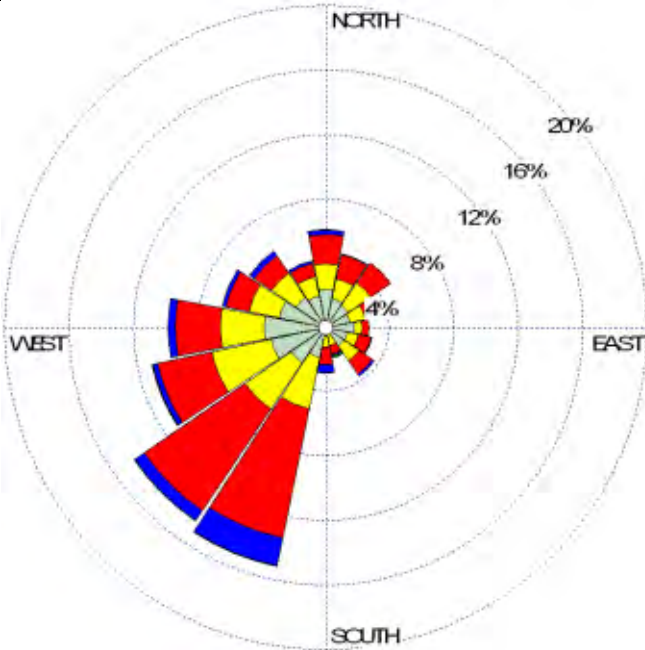
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

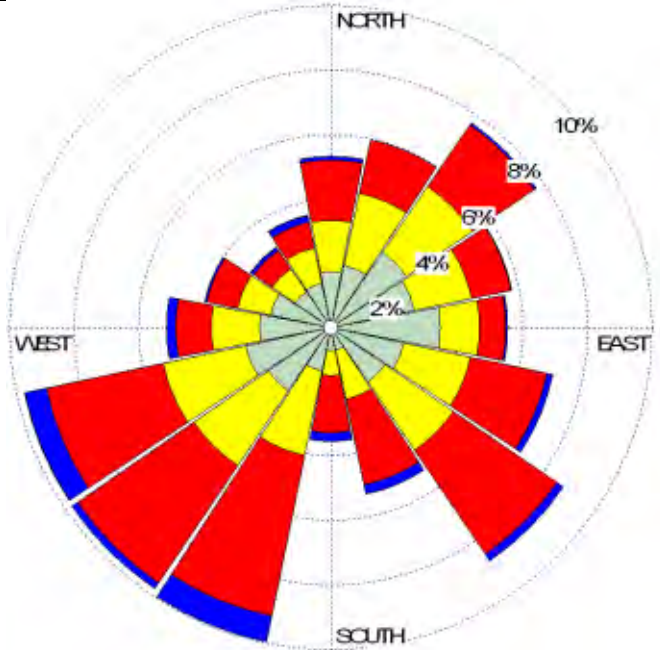
Typical Wind Rose for Each Month

Corolla Lighthouse (September - December)

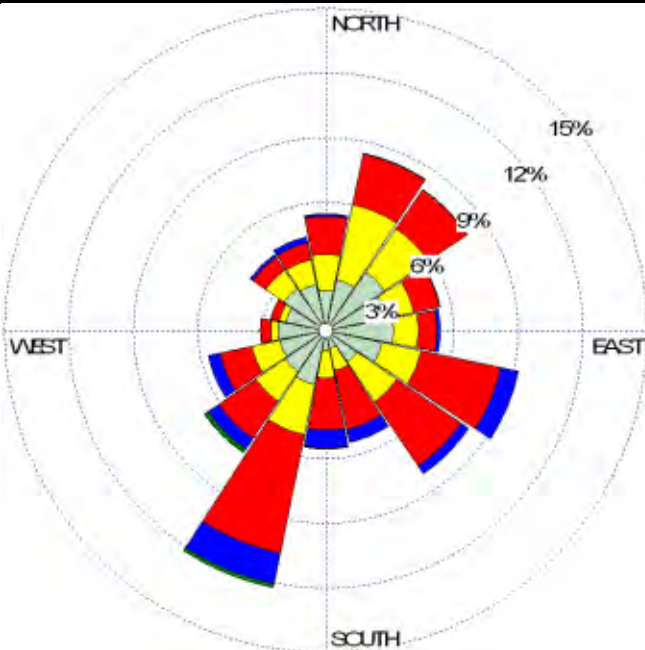
Wind Speed [m/s]



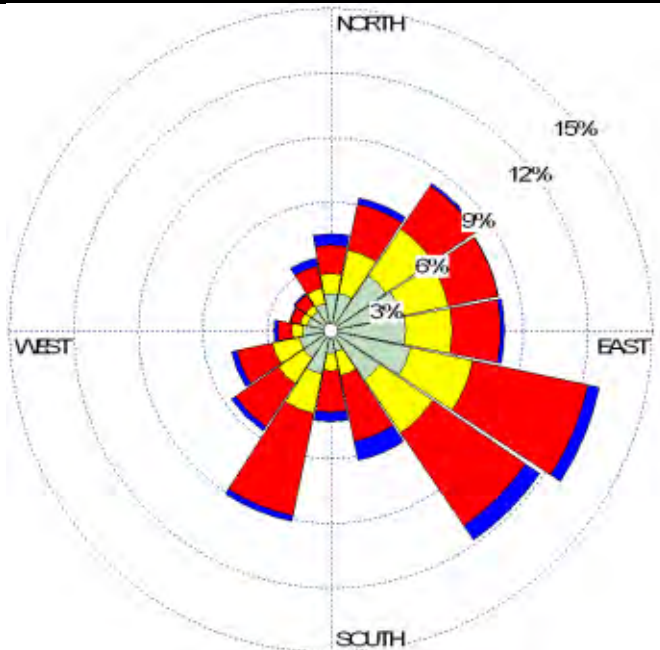
September



October



November



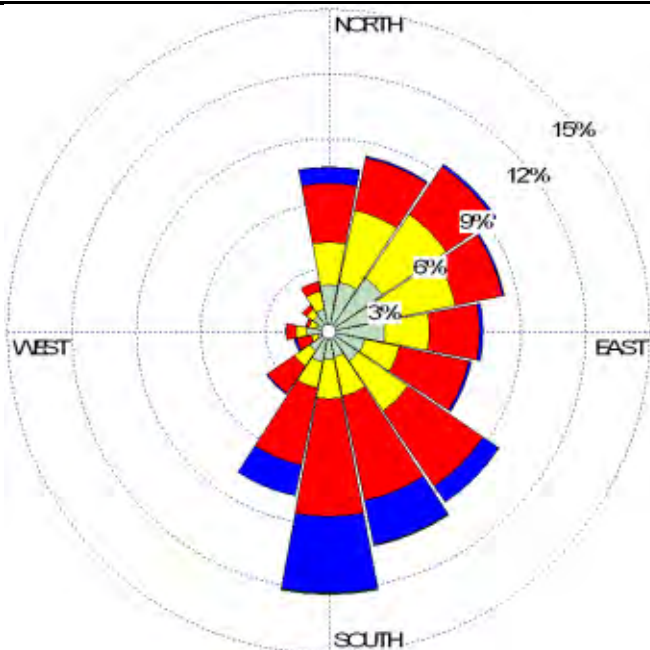
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

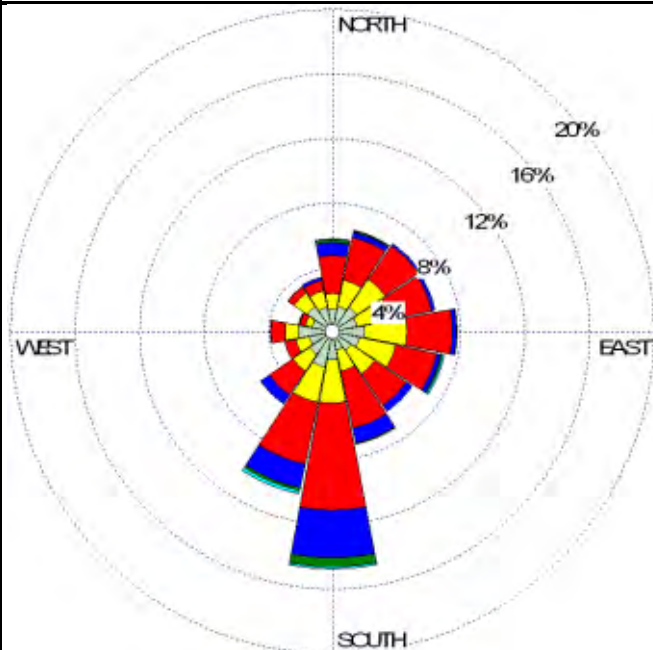
Typical Wind Rose for Each Month

Beach at Duck (January - April)

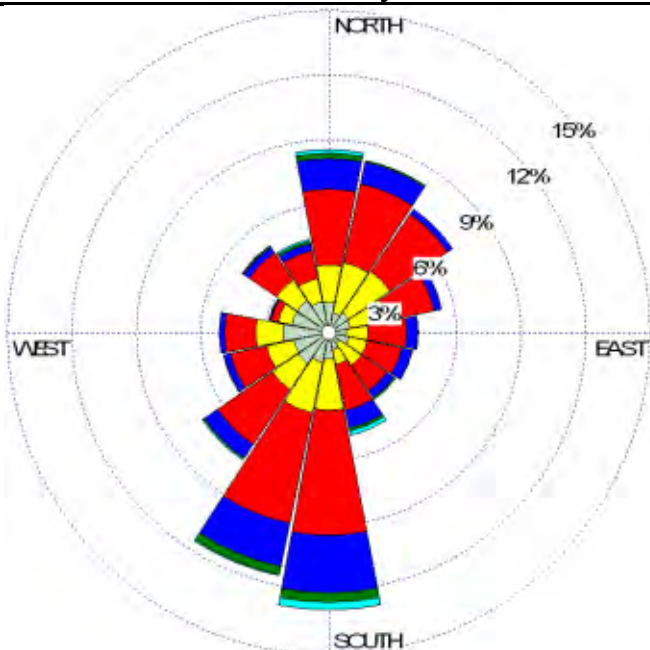
Wind Speed [m/s]



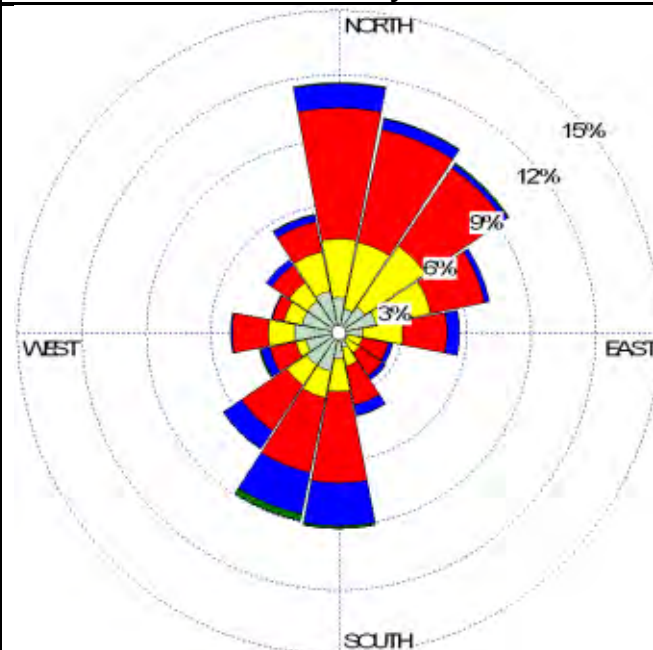
January



February



March

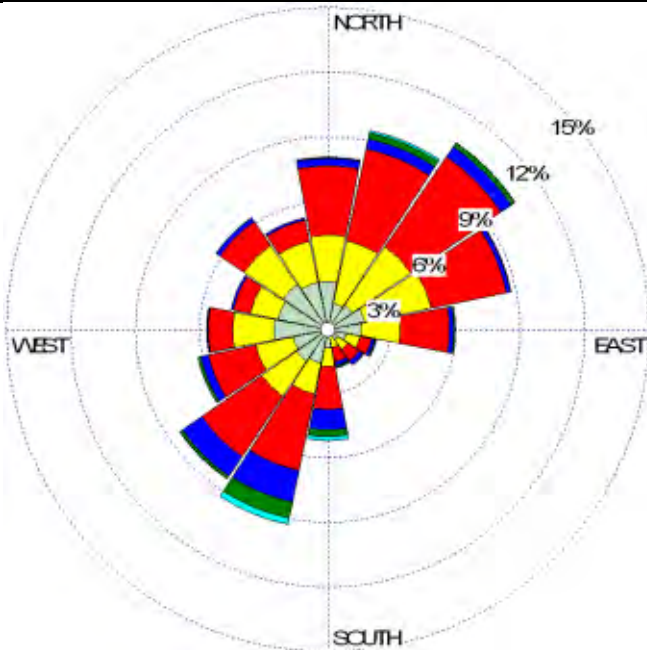
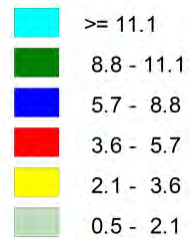


April

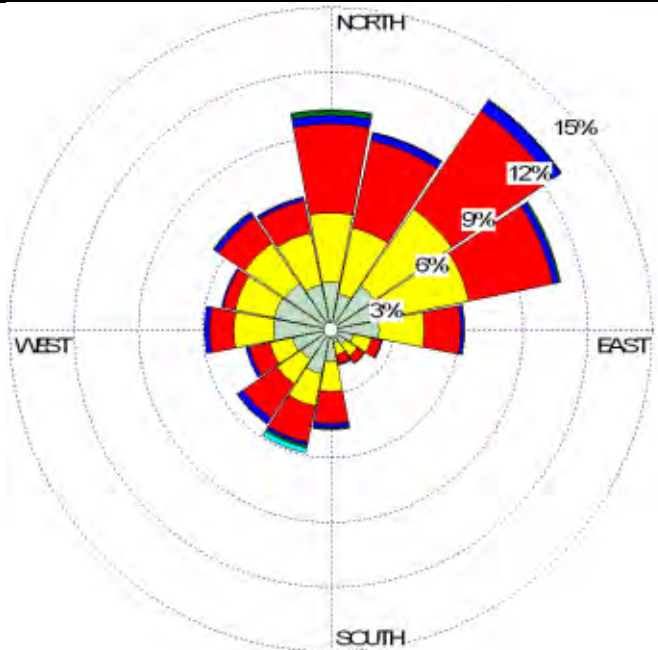
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Beach at Duck (May - August)

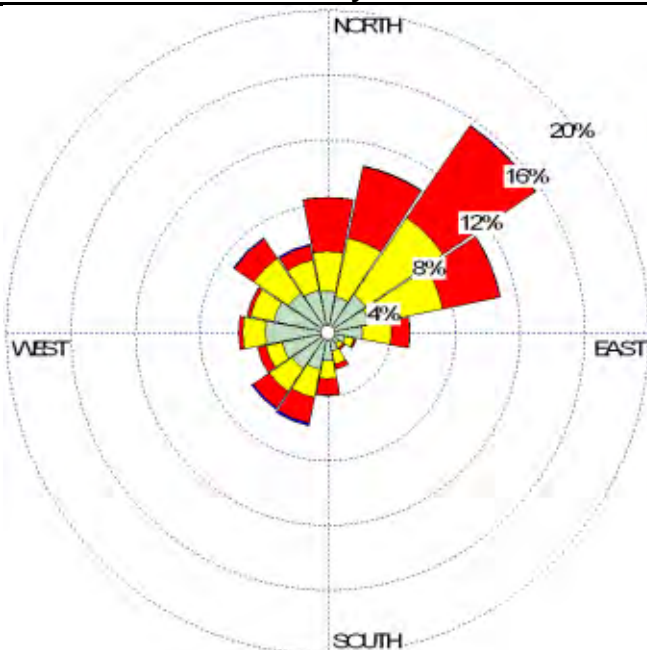
Wind Speed [m/s]



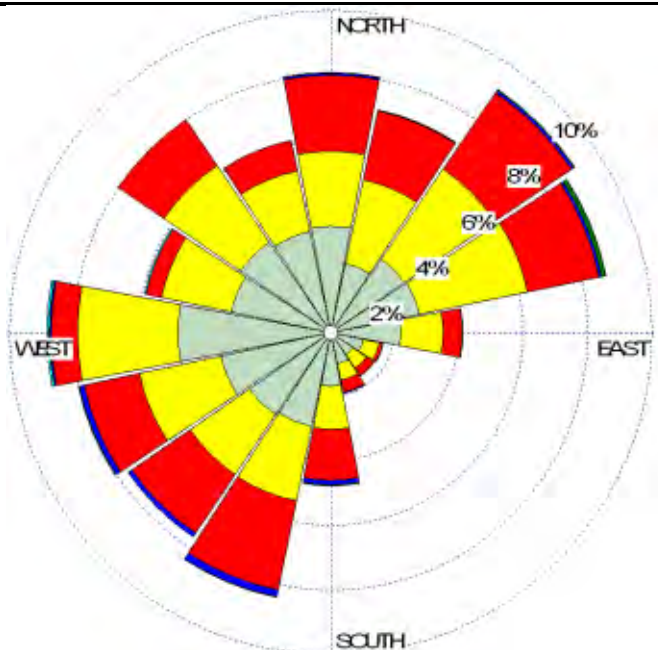
May



June



July



August

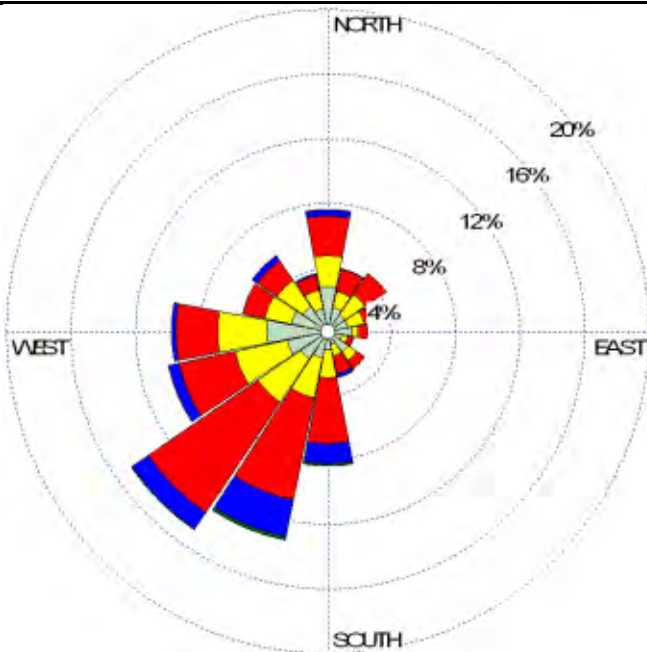
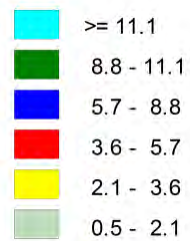
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

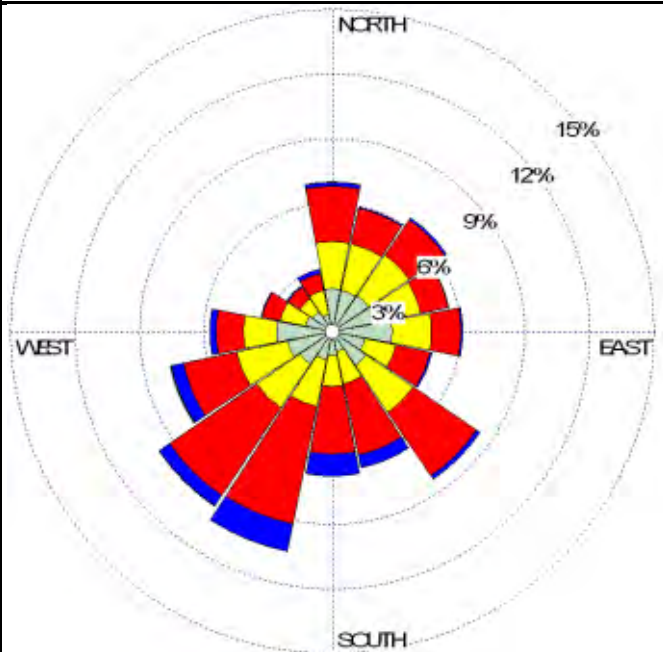
Beach at Duck

(September - December)

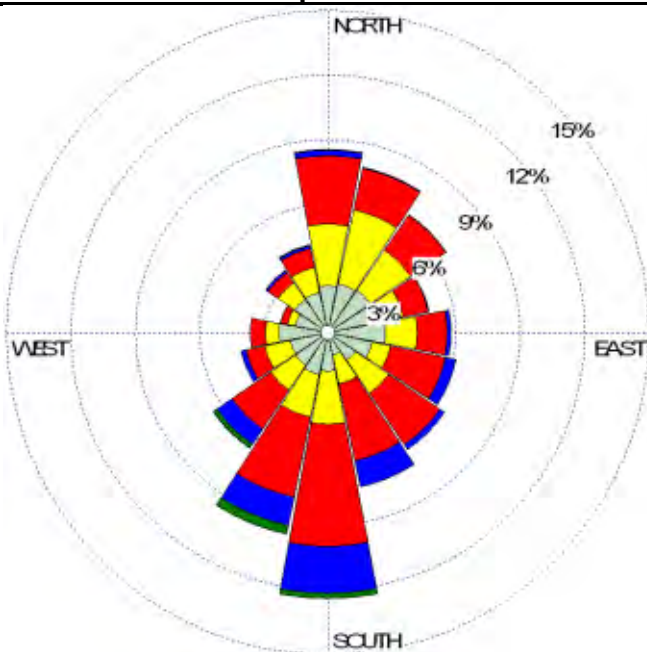
Wind Speed [m/s]



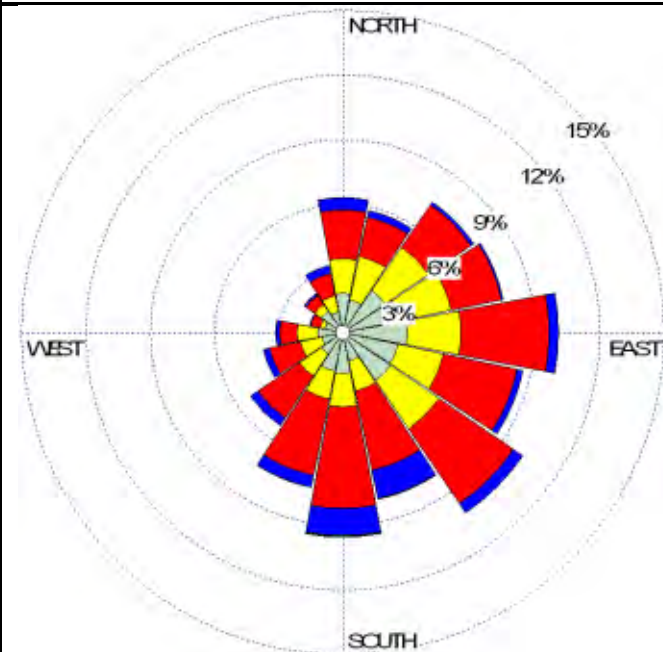
September



October



November

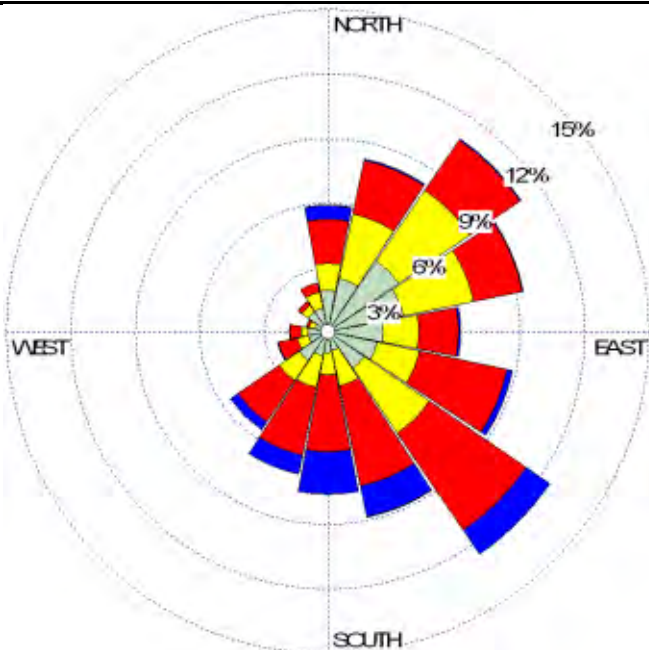
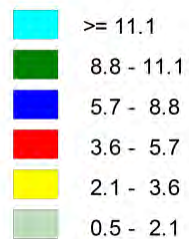


December

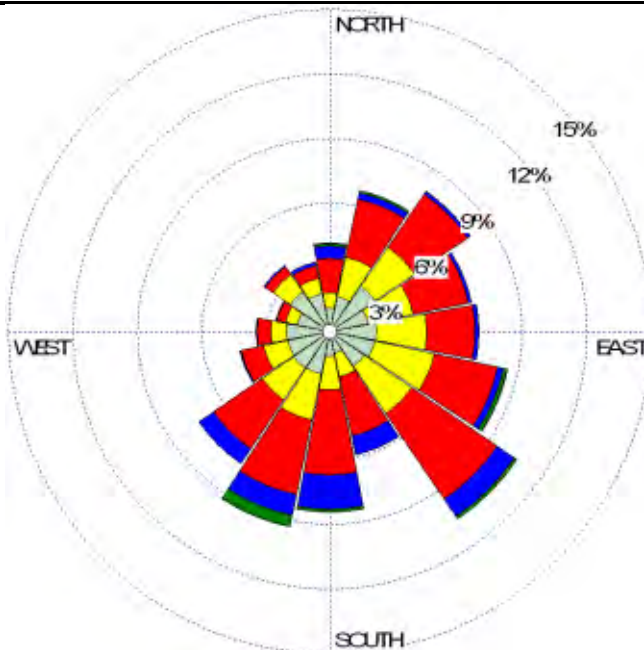
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Kitty Hawk (January - April)

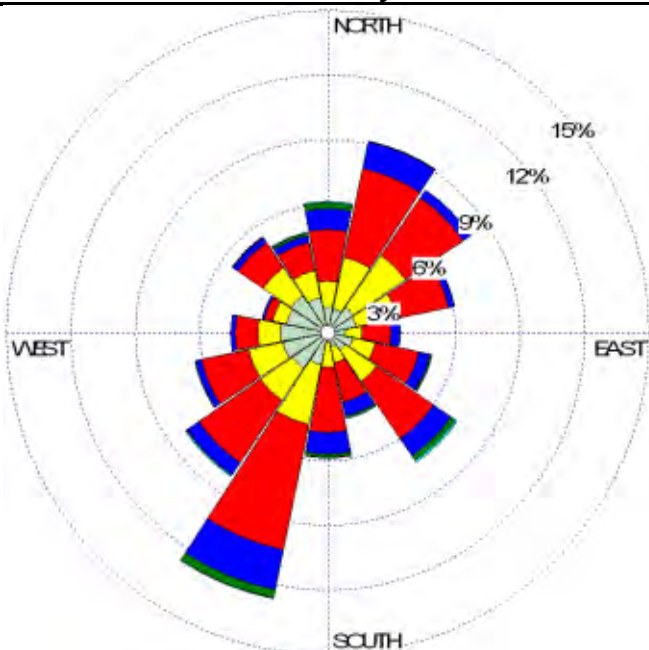
Wind Speed [m/s]



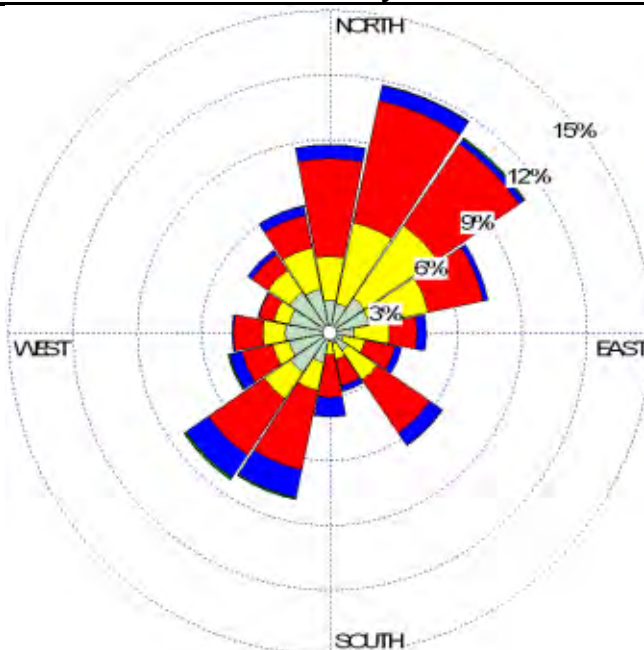
January



February



March



April

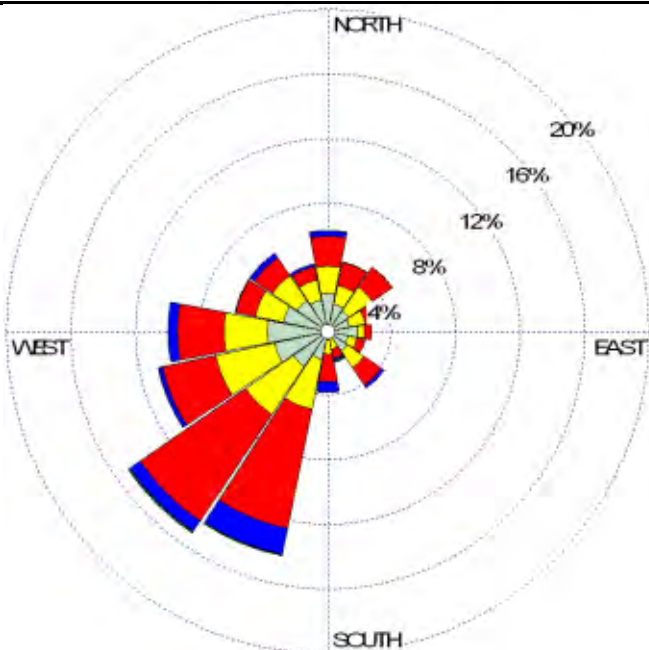
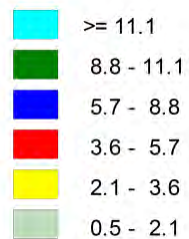
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

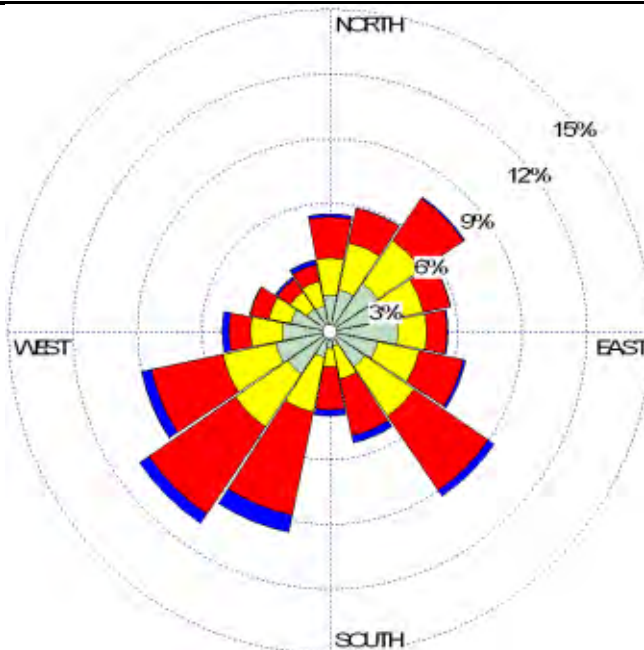
Kitty Hawk

(September - December)

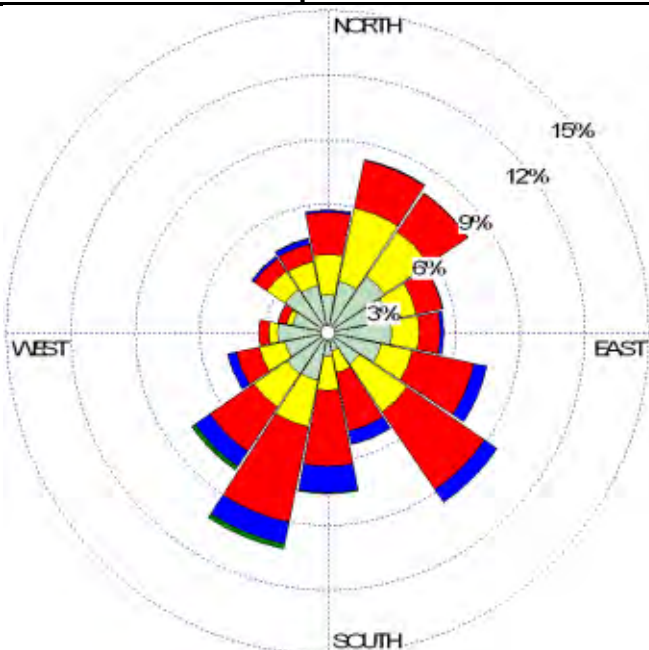
Wind Speed [m/s]



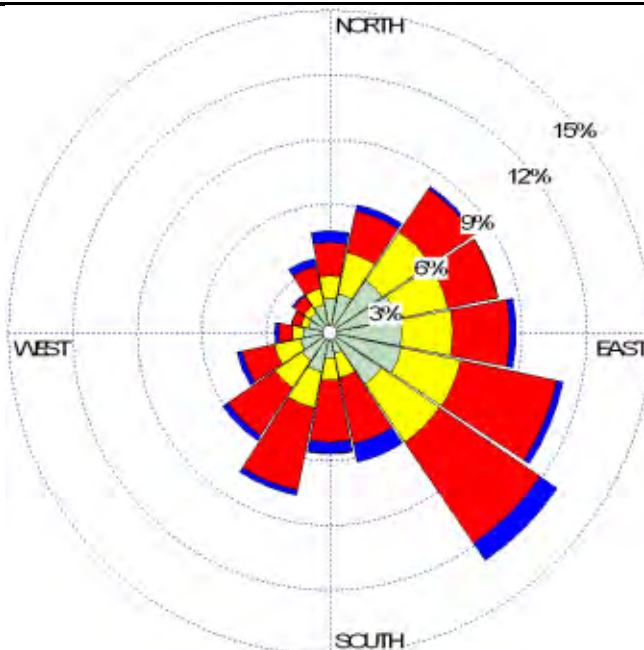
September



October



November



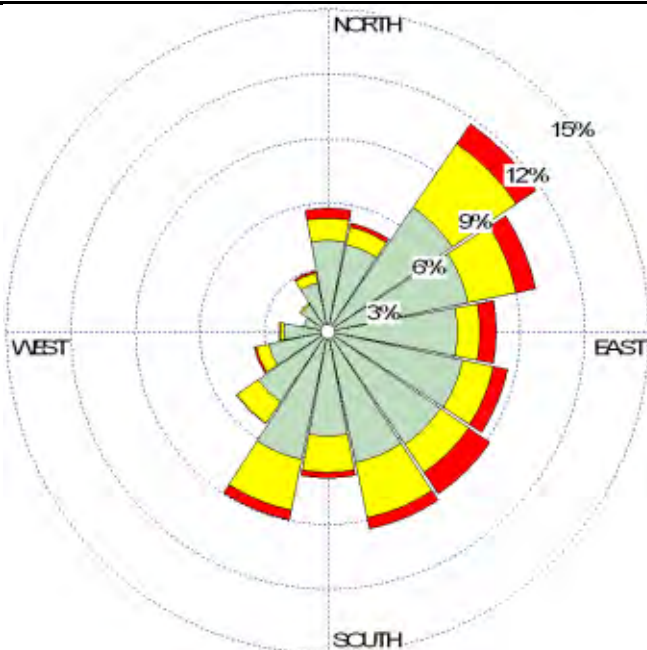
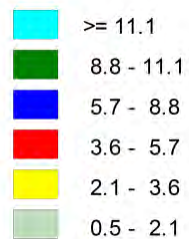
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

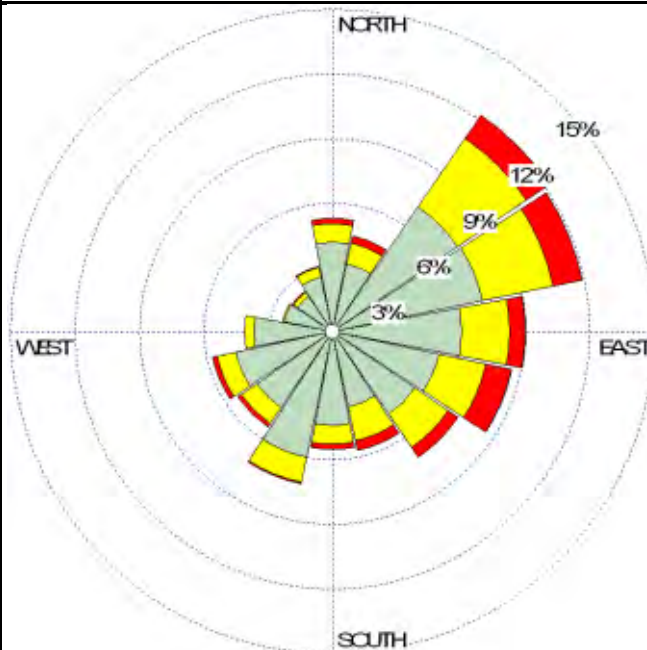
Typical Wind Rose for Each Month

Bald Head Island (January - April)

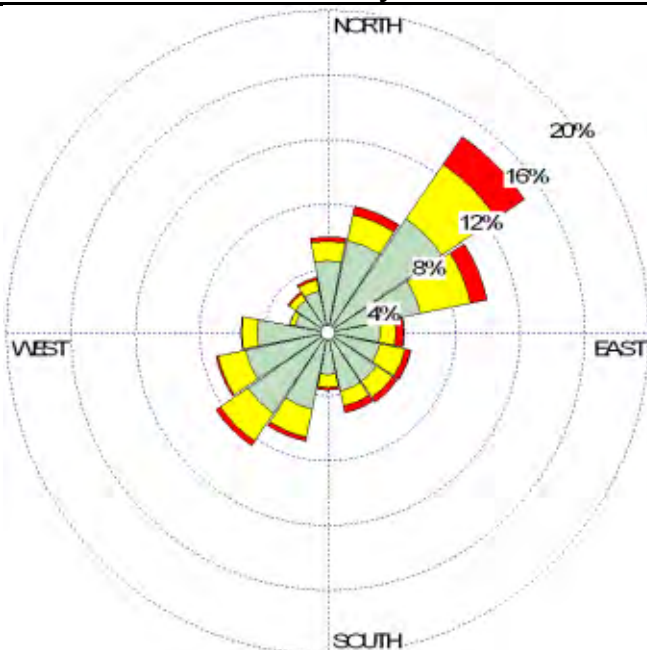
Wind Speed [m/s]



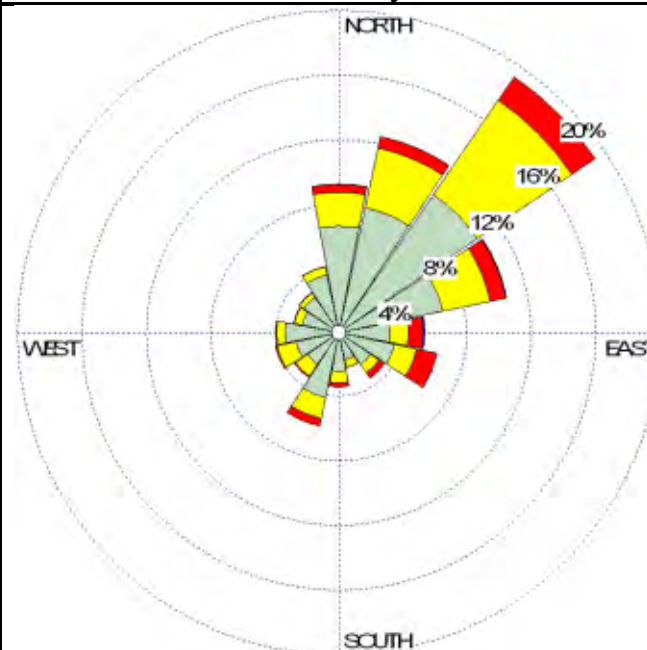
January



February



March



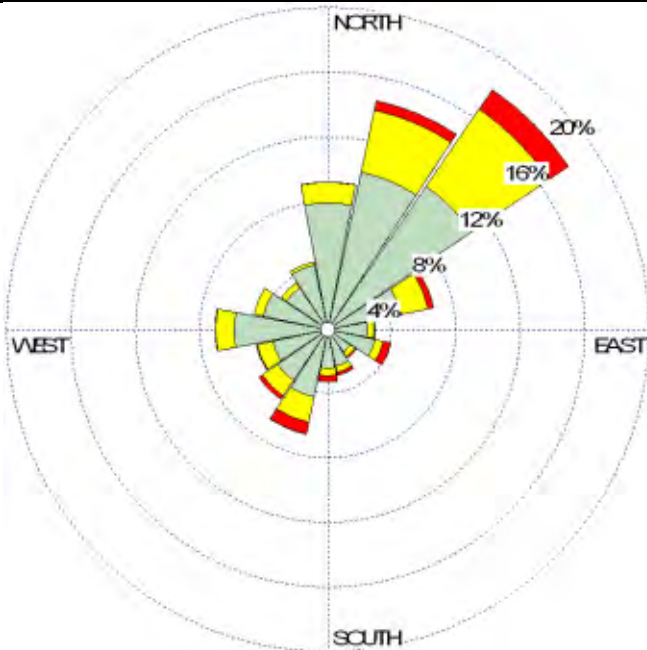
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

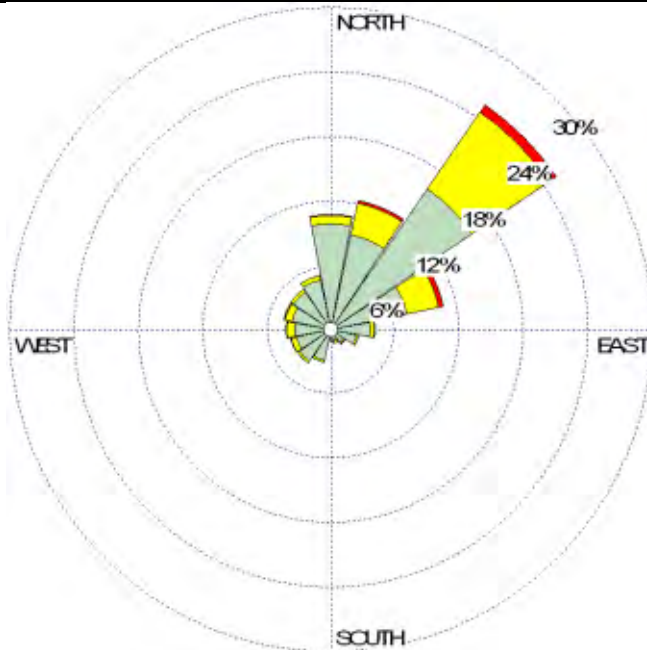
Typical Wind Rose for Each Month

Bald Head Island (May - August)

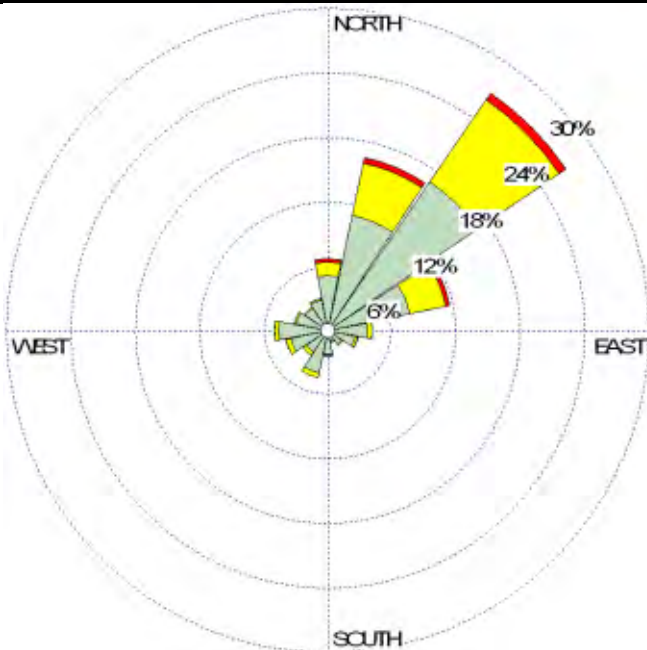
Wind Speed [m/s]



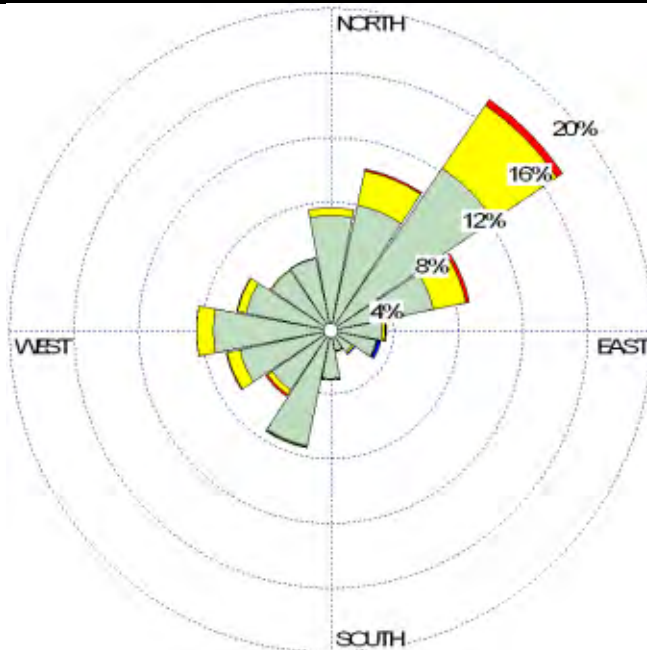
May



June



July



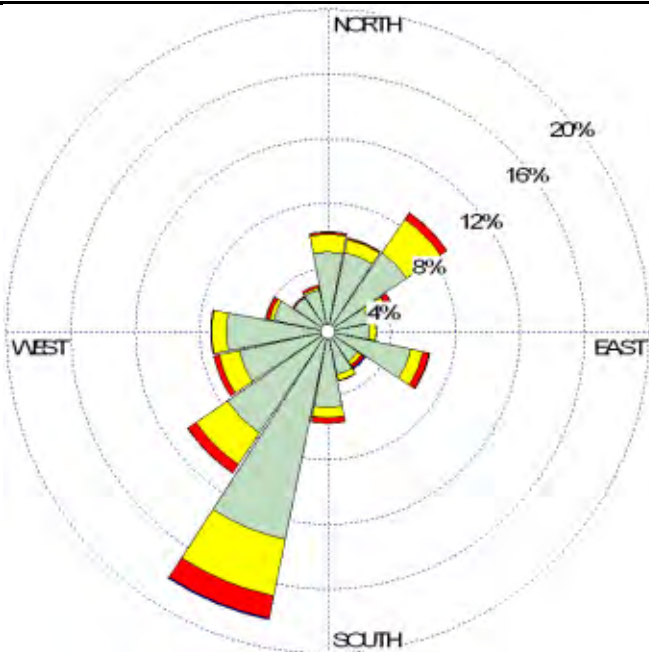
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

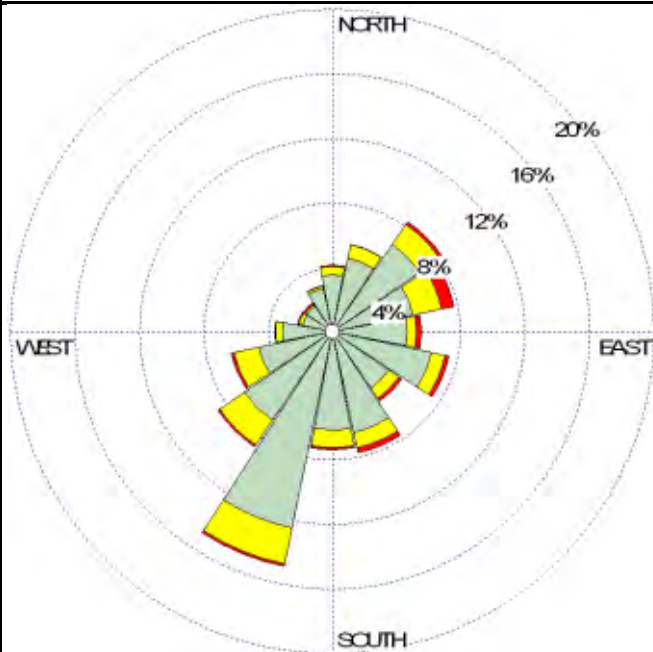
Typical Wind Rose for Each Month

Bald Head Island (September - December)

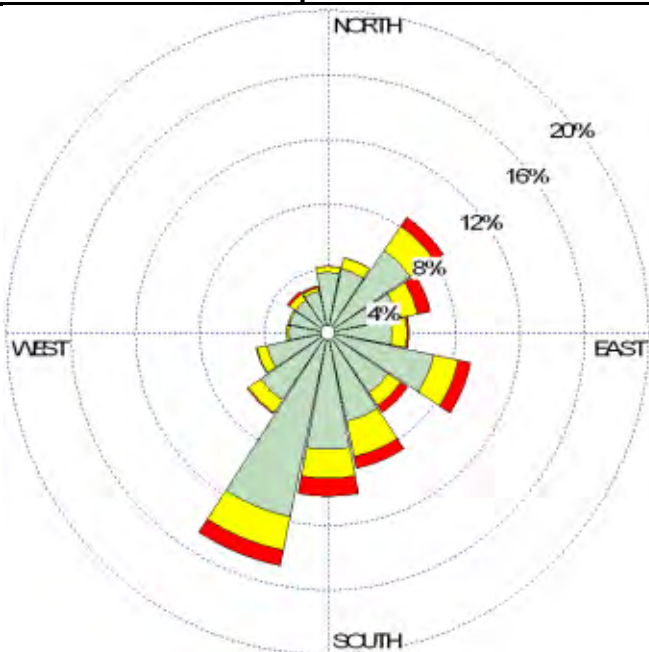
Wind Speed [m/s]



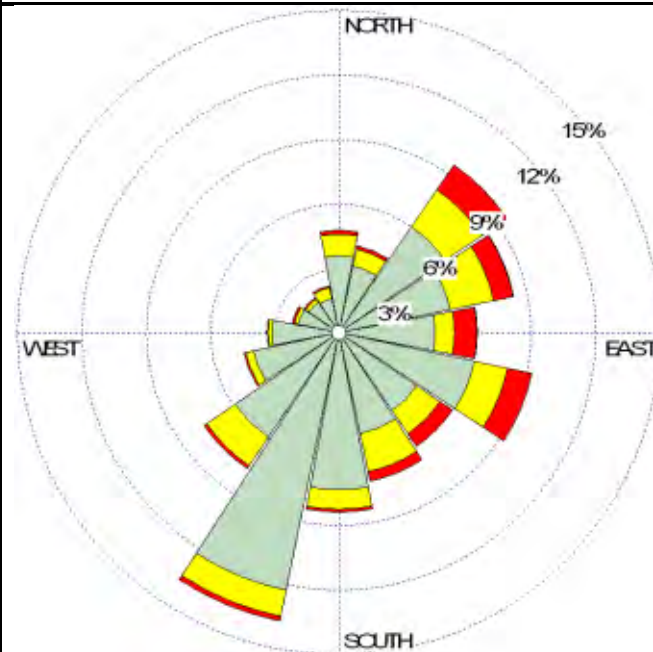
September



October



November



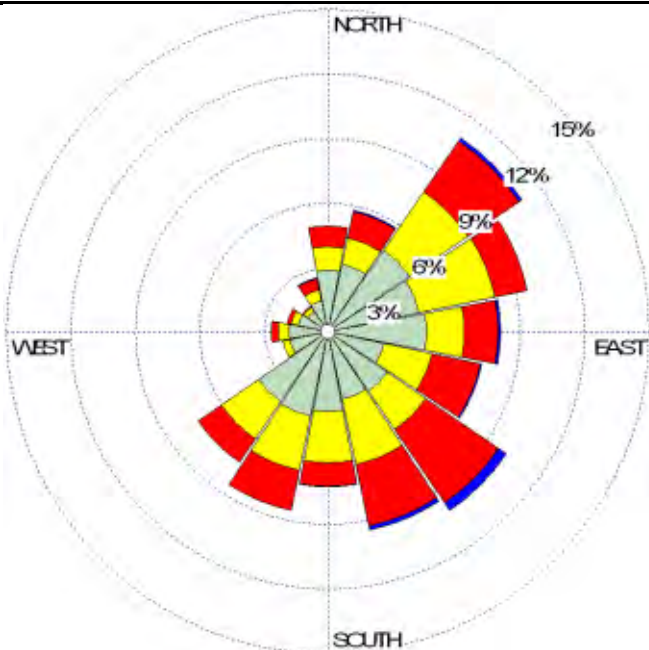
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

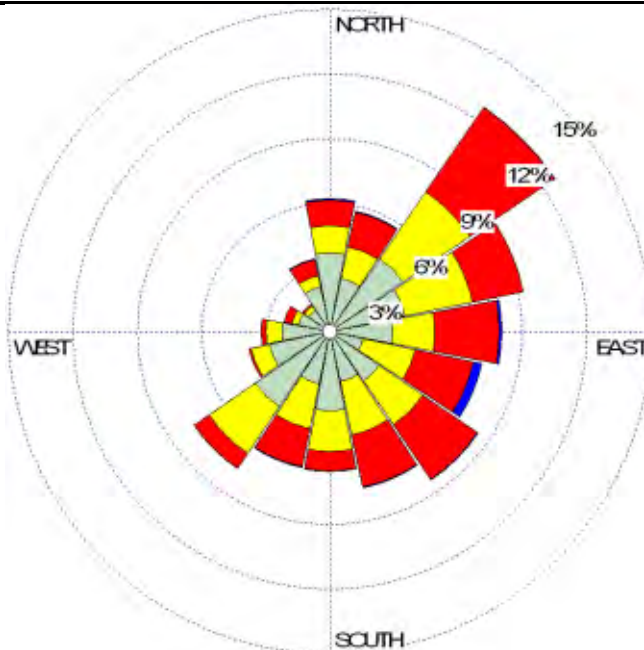
Typical Wind Rose for Each Month

Atlantic Beach (January - April)

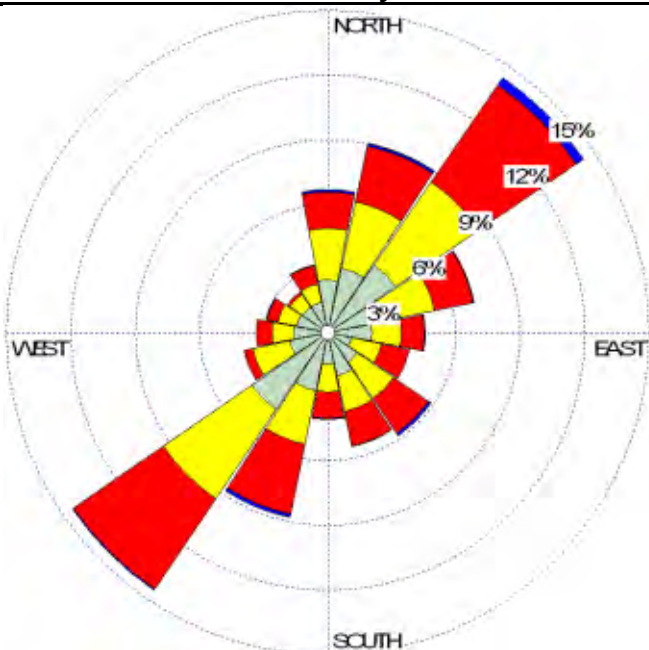
Wind Speed [m/s]



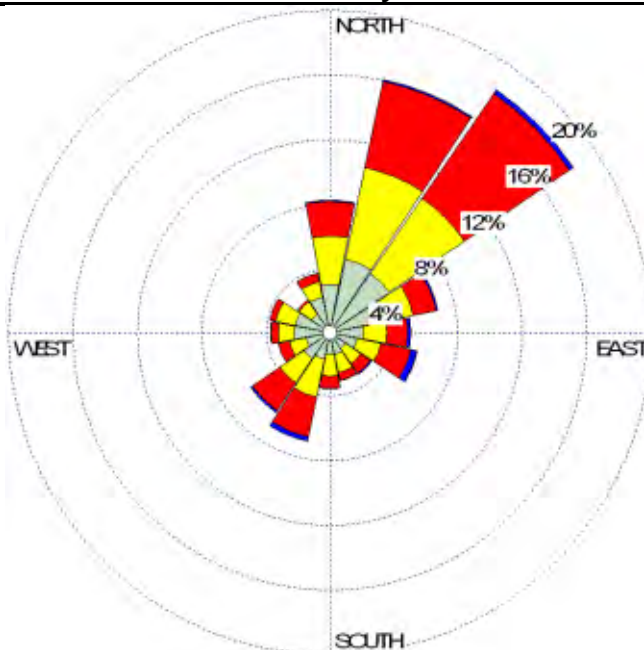
January



February



March

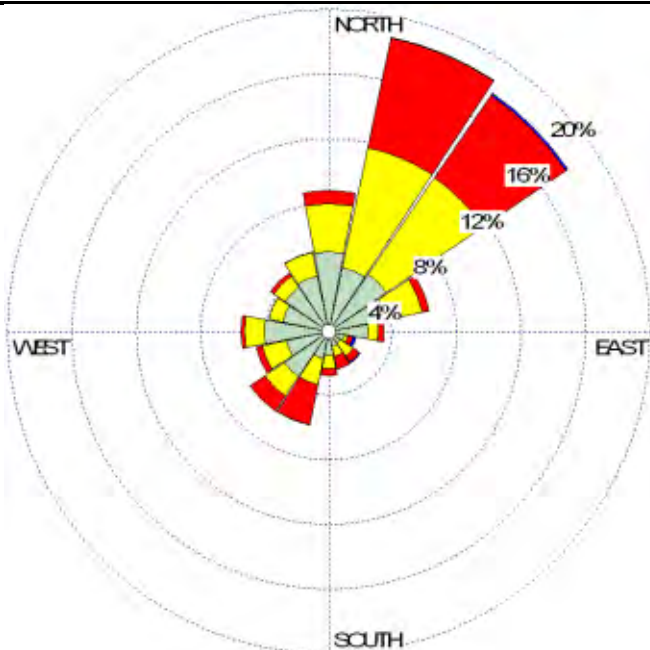
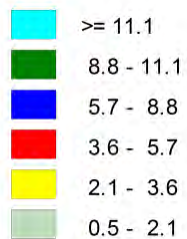


April

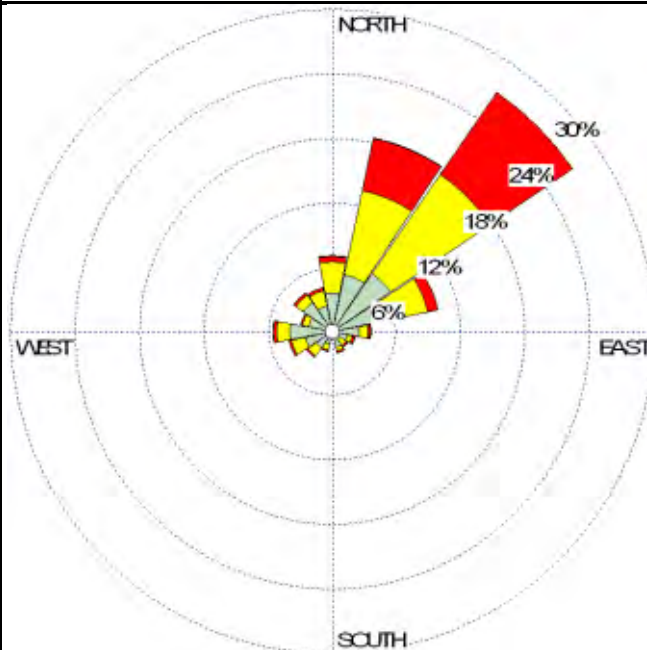
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Atlantic Beach (May - August)

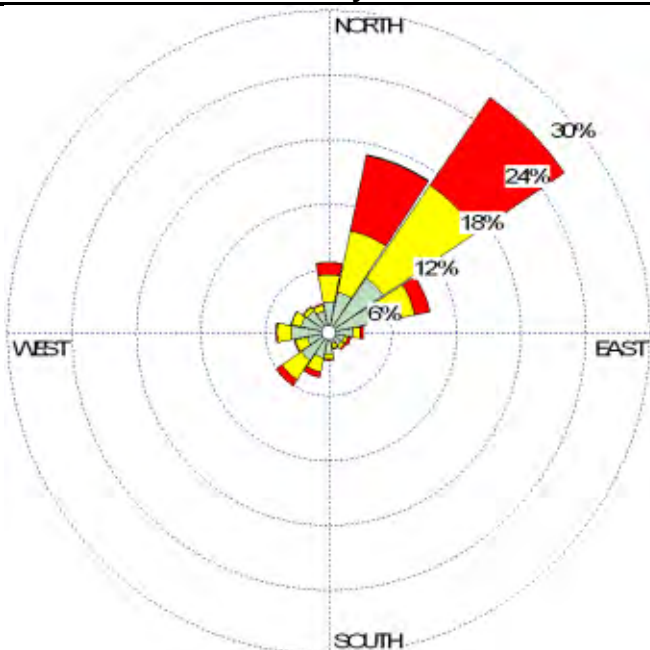
Wind Speed [m/s]



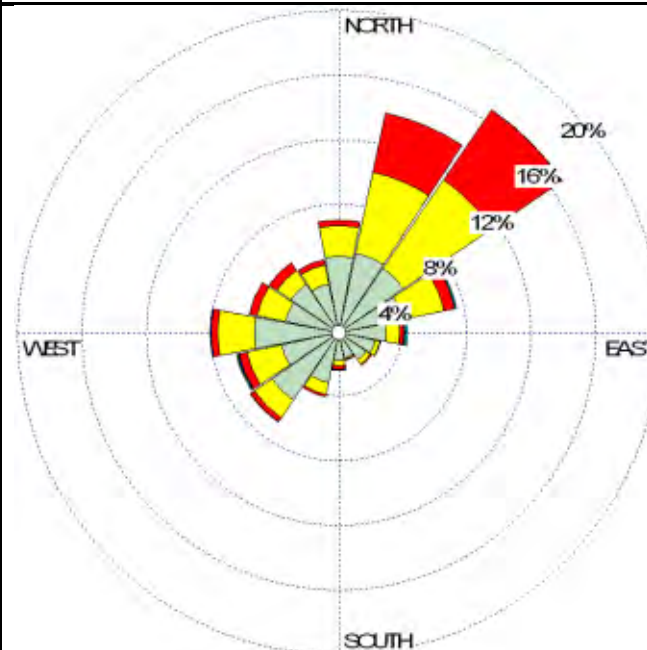
May



June



July



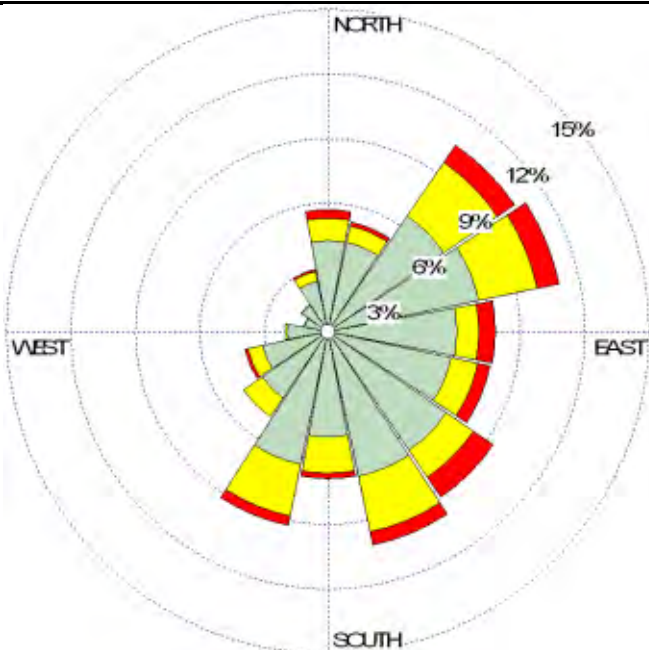
August

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

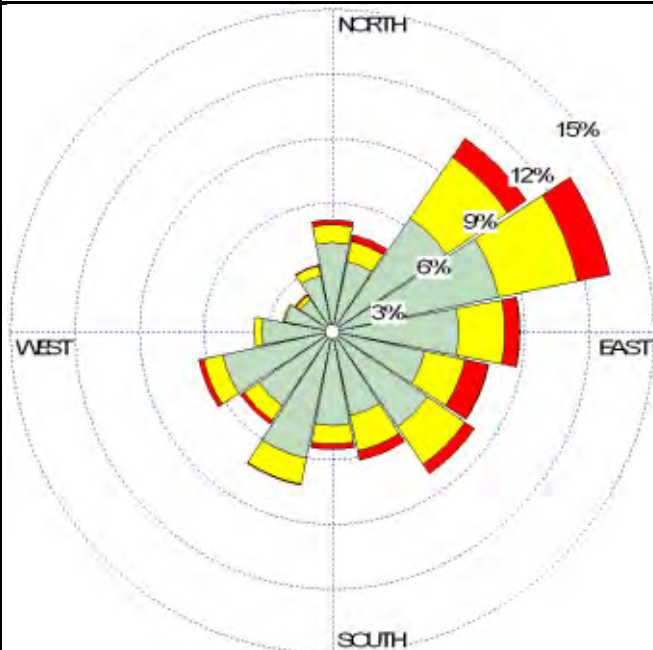
Typical Wind Rose for Each Month

Oak Island (January - April)

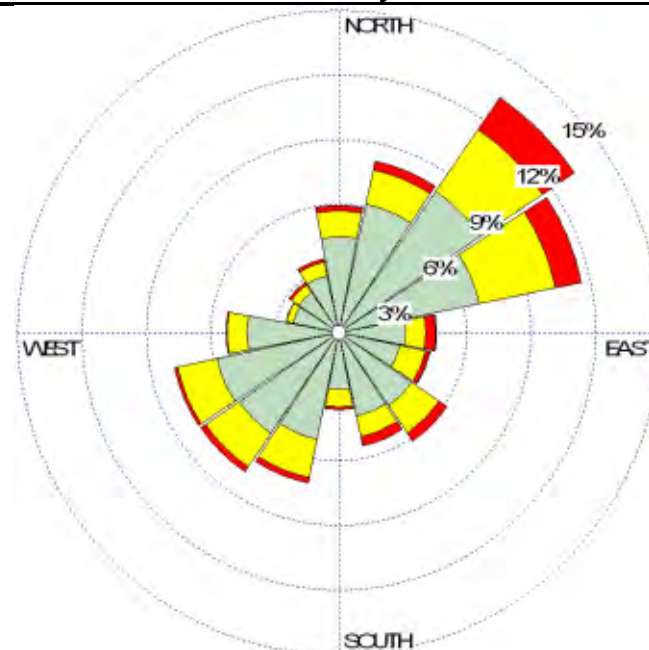
Wind Speed [m/s]



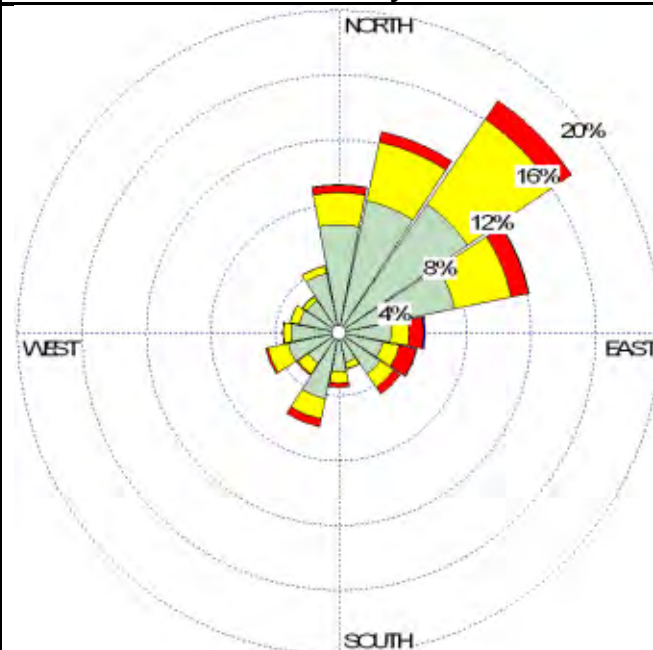
January



February



March

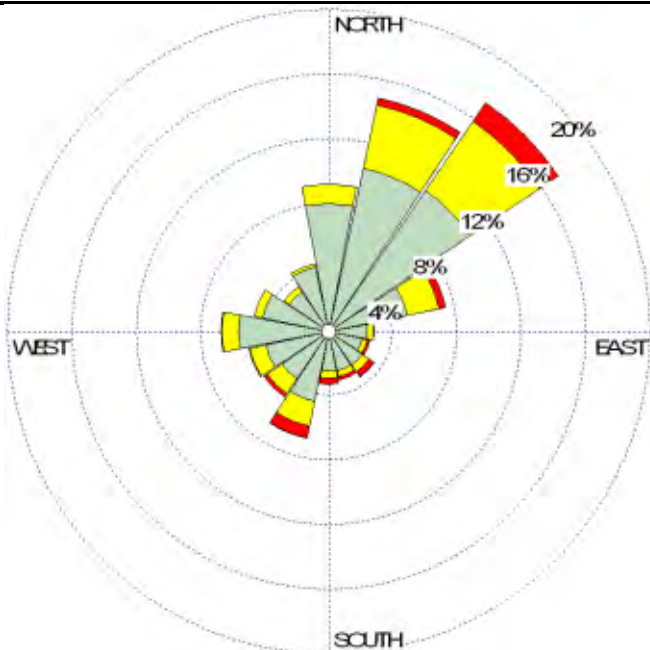
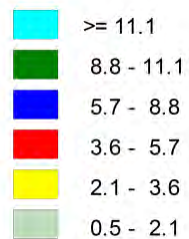


April

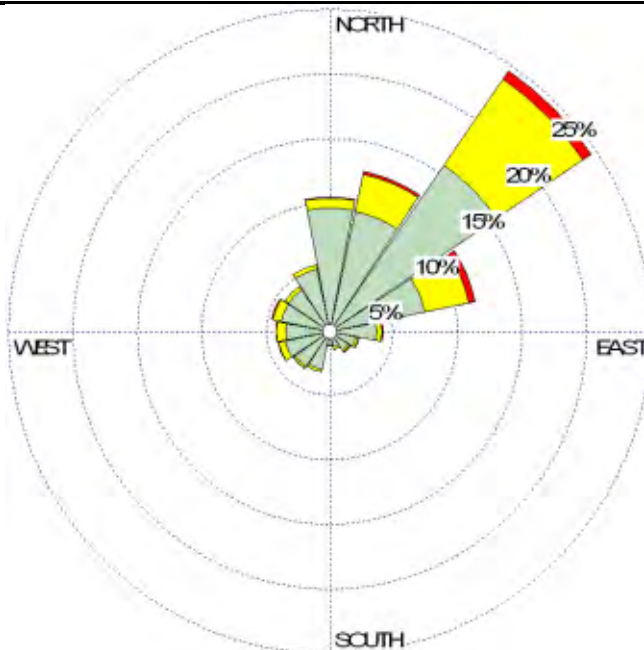
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Oak Island (May - August)

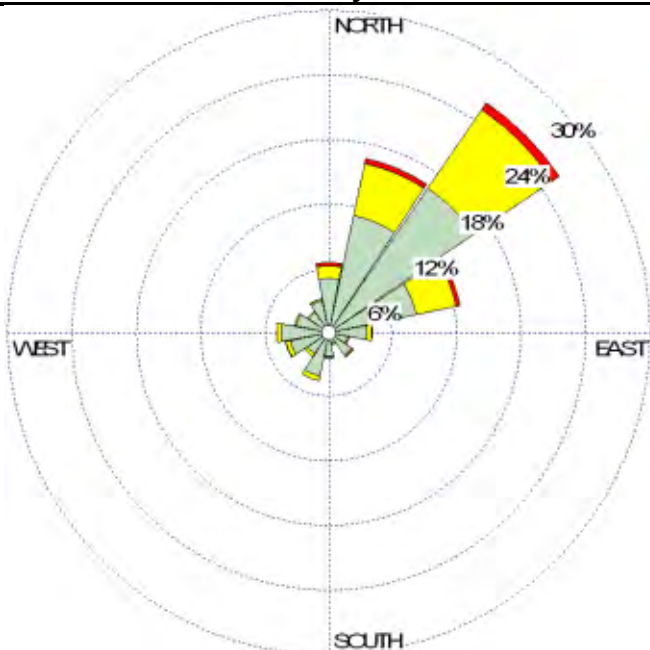
Wind Speed [m/s]



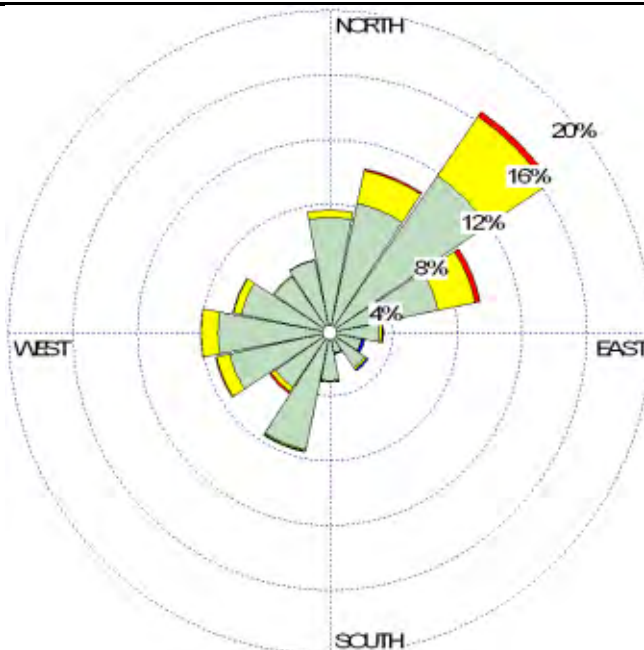
May



June



July



August

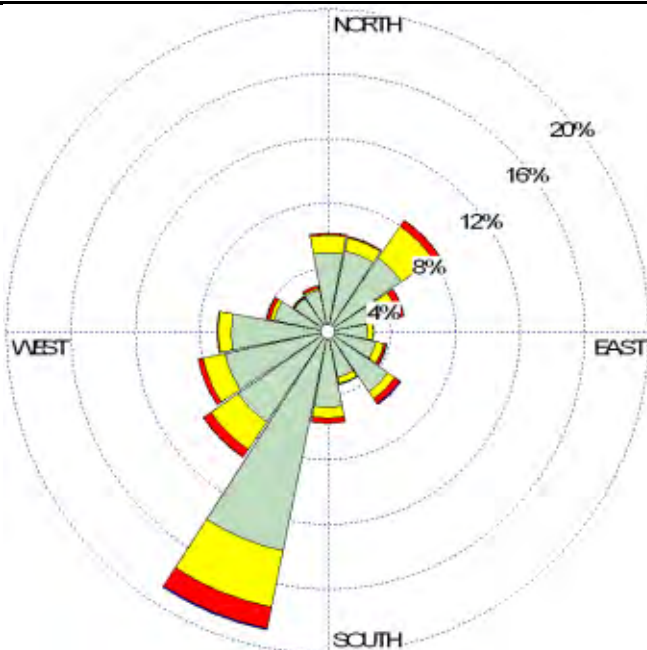
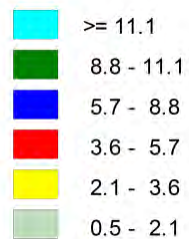
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

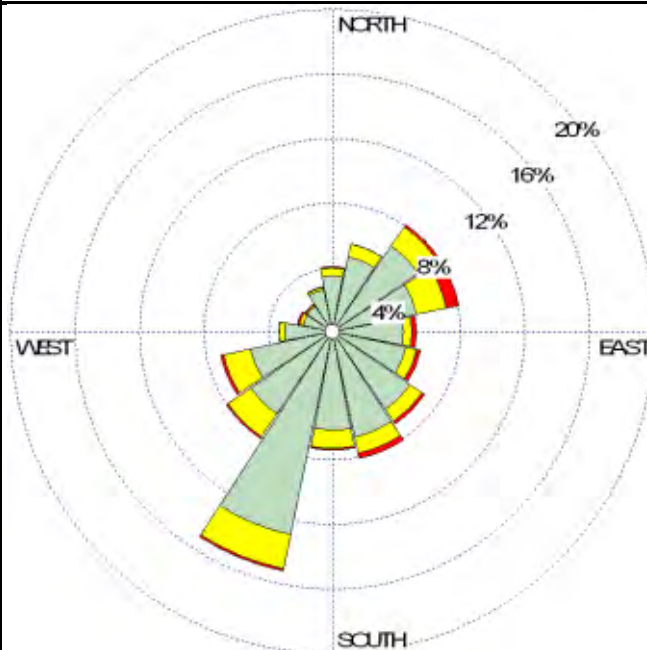
Oak Island

(September - December)

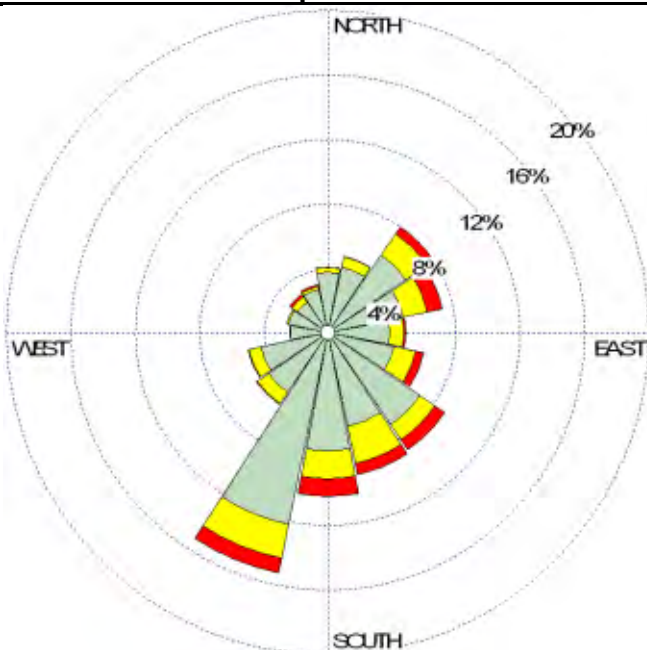
Wind Speed [m/s]



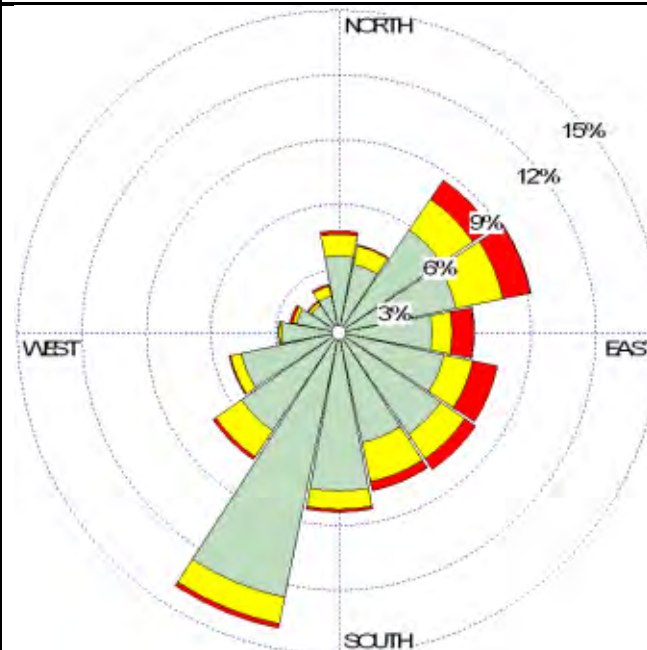
September



October



November



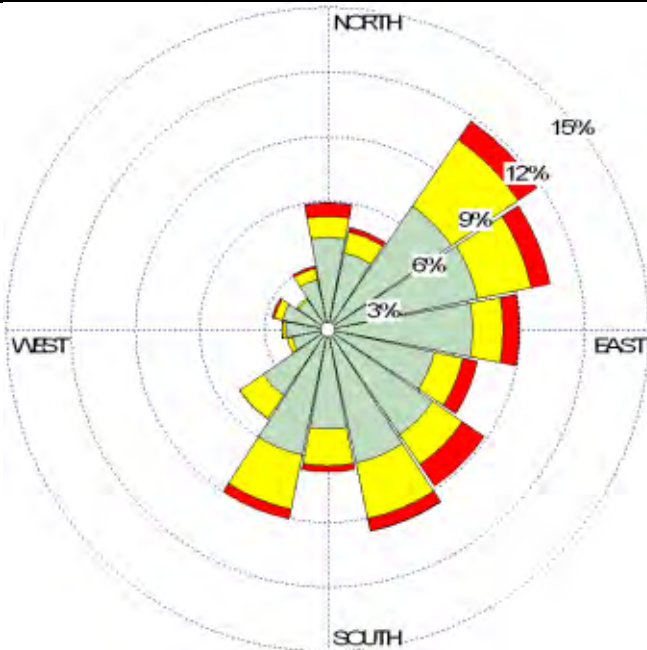
December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

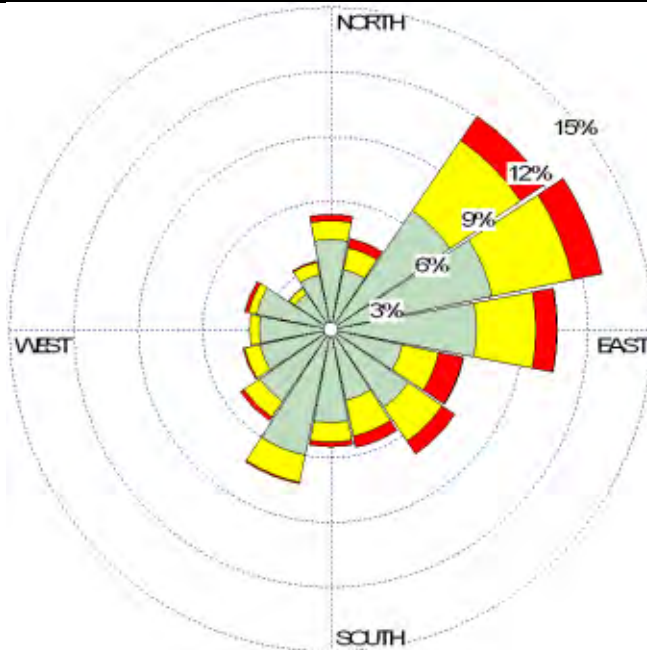
Typical Wind Rose for Each Month

Holden Beach (January - April)

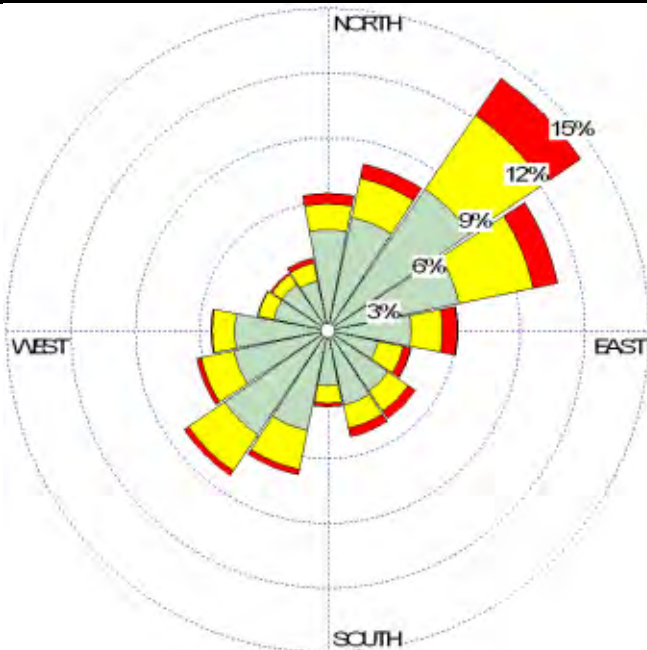
Wind Speed [m/s]



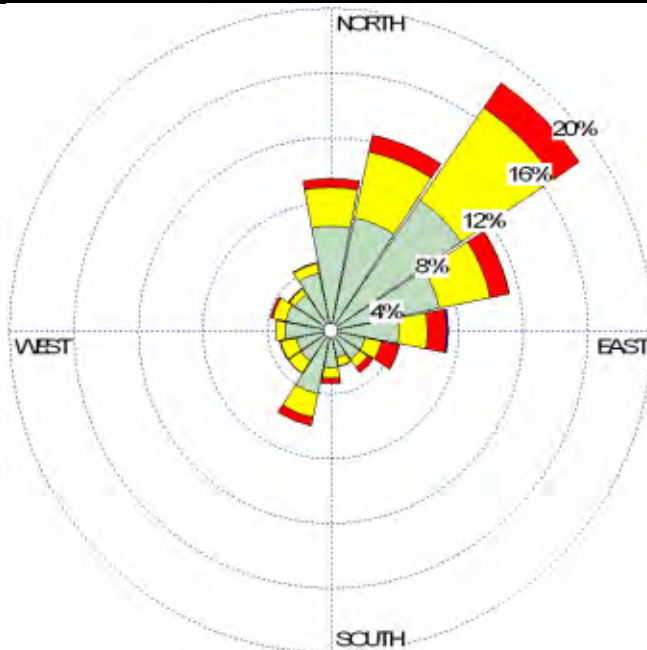
January



February



March



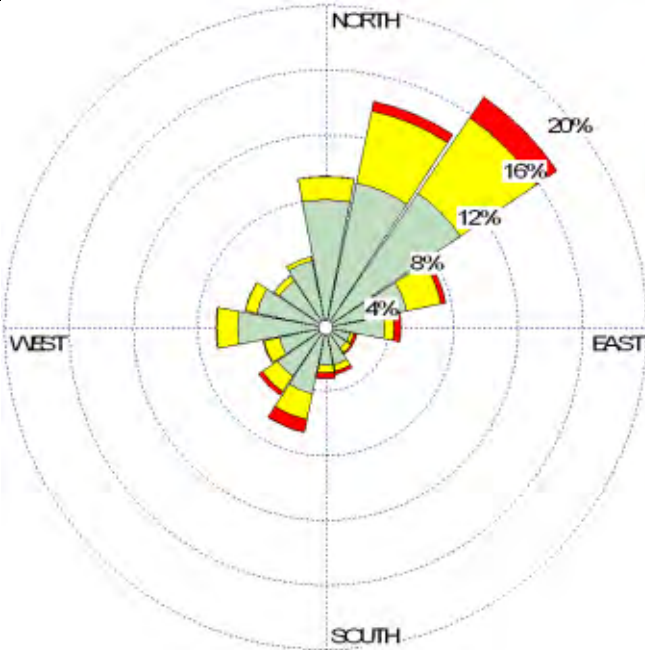
April

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

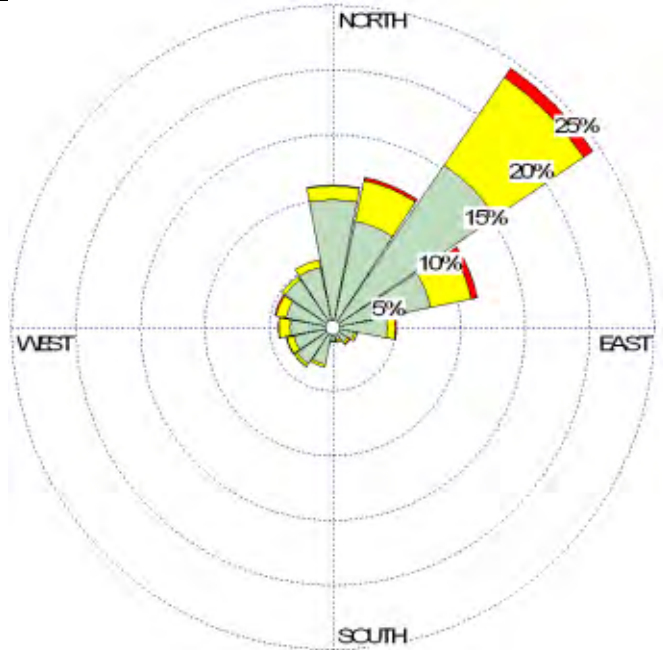
Typical Wind Rose for Each Month

Holden Beach
(May - August)

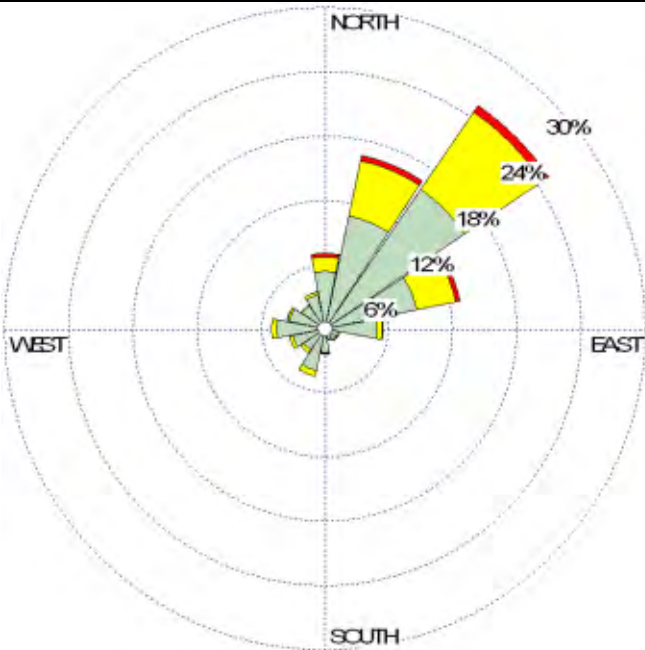
Wind Speed [m/s]



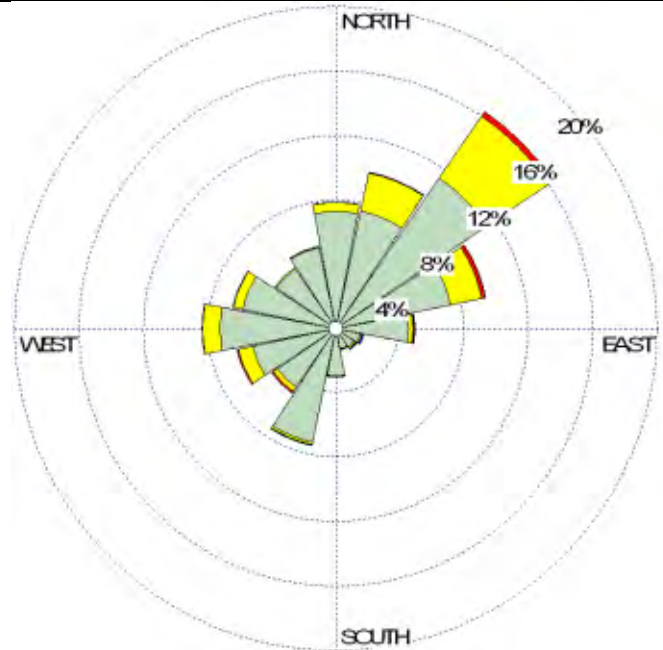
May



June



July



August

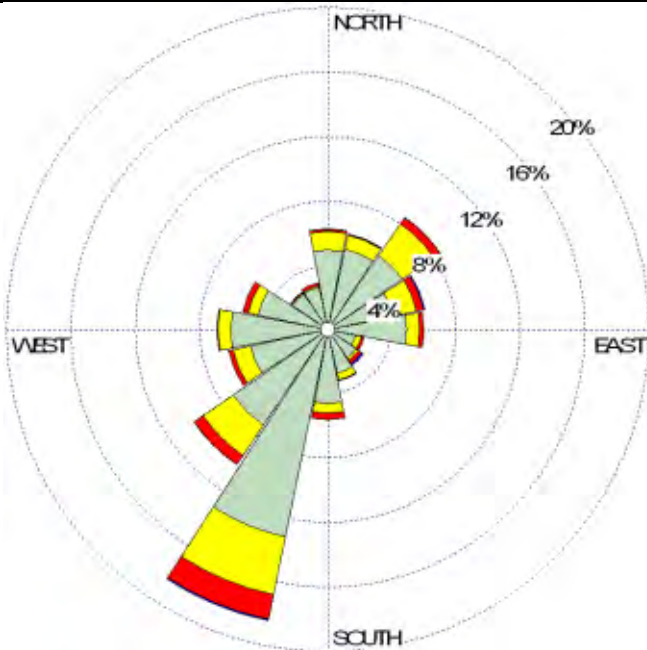
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month

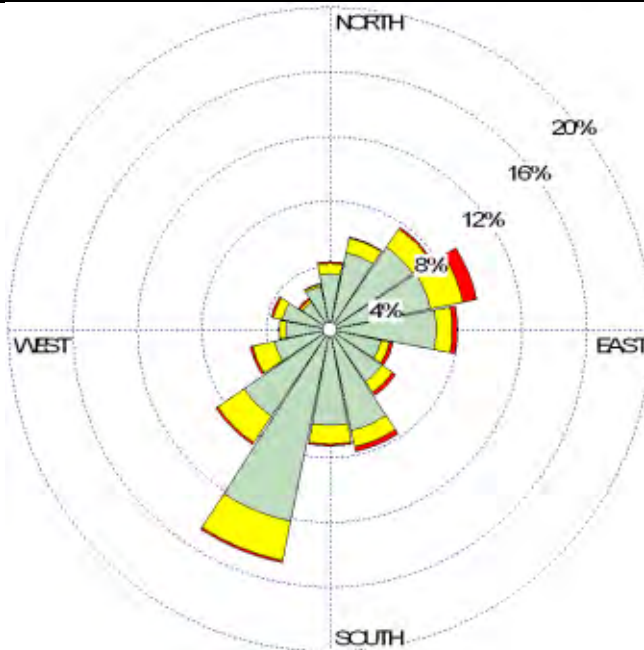
Holden Beach

(September - December)

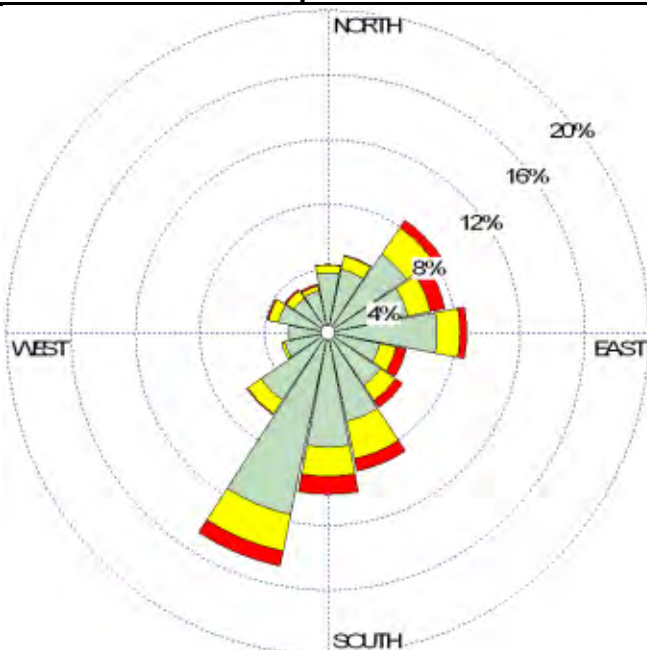
Wind Speed [m/s]



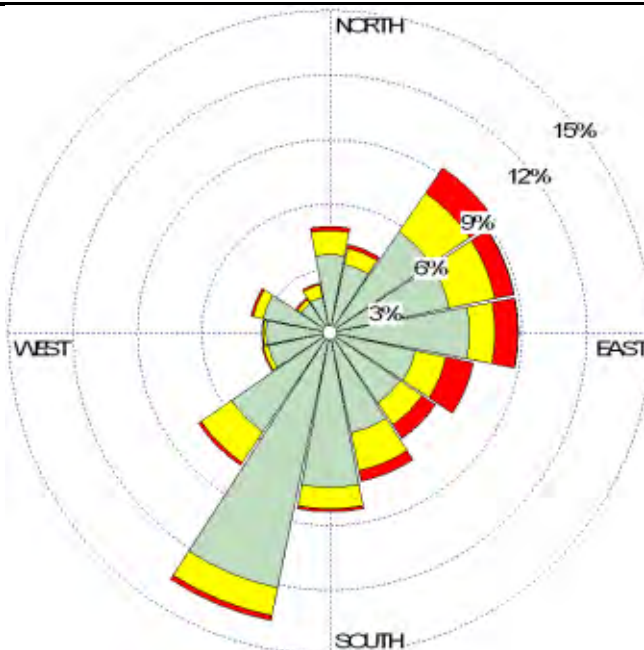
September



October



November

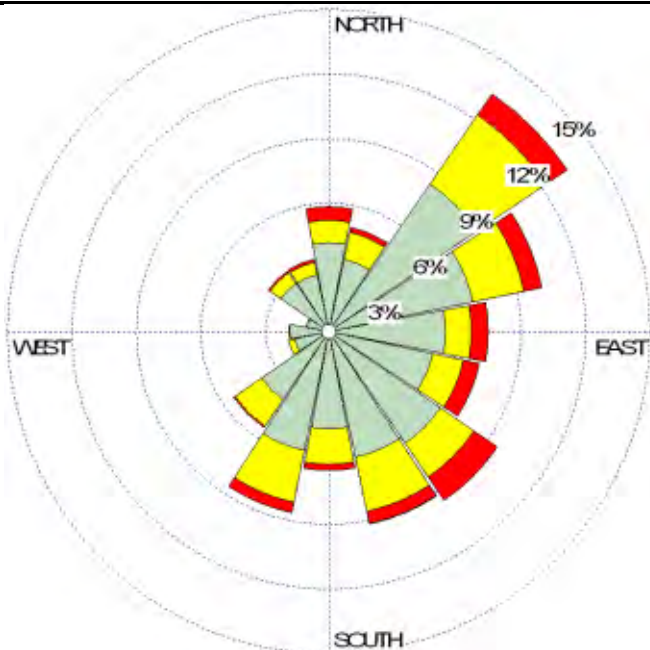
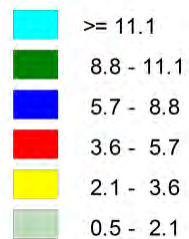


December

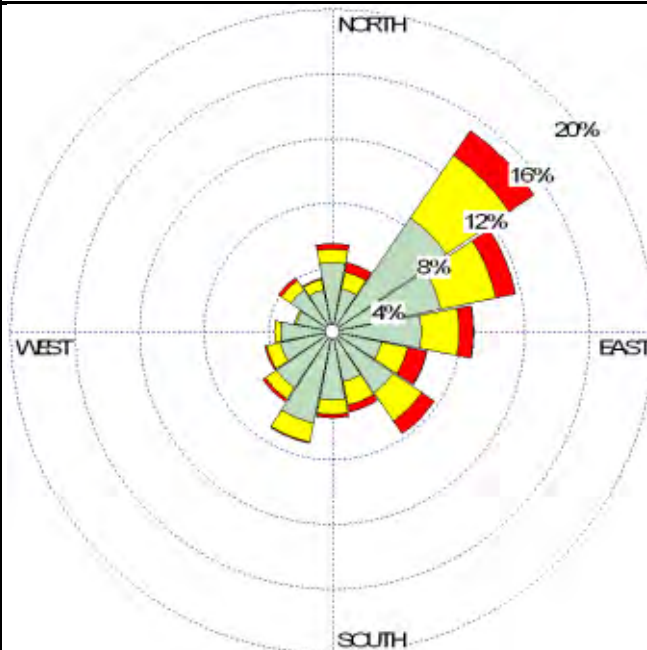
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Sunset Beach (January - April)

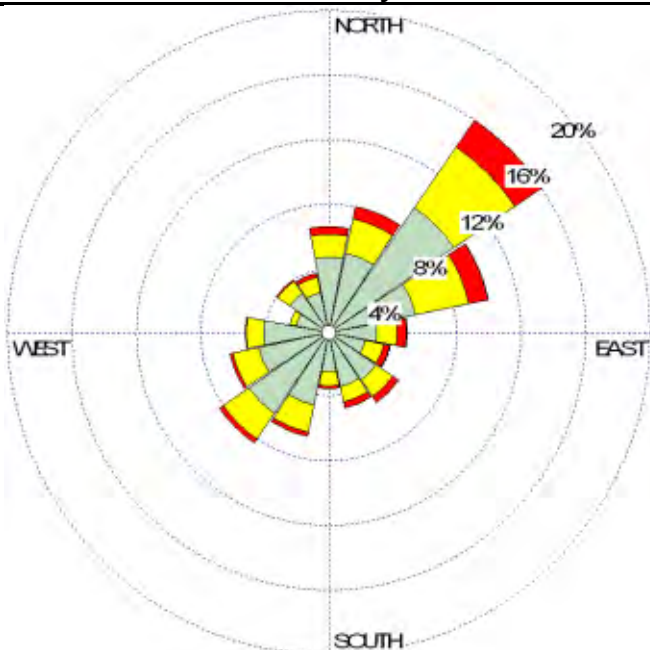
Wind Speed [m/s]



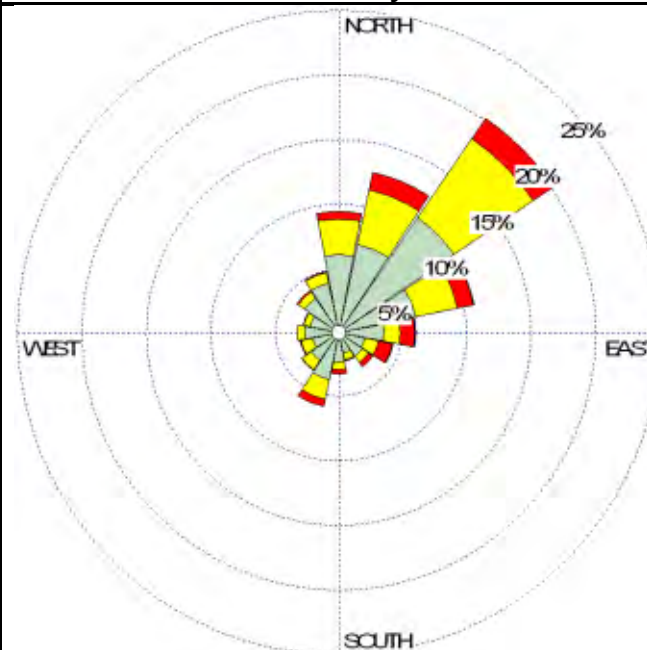
January



February



March

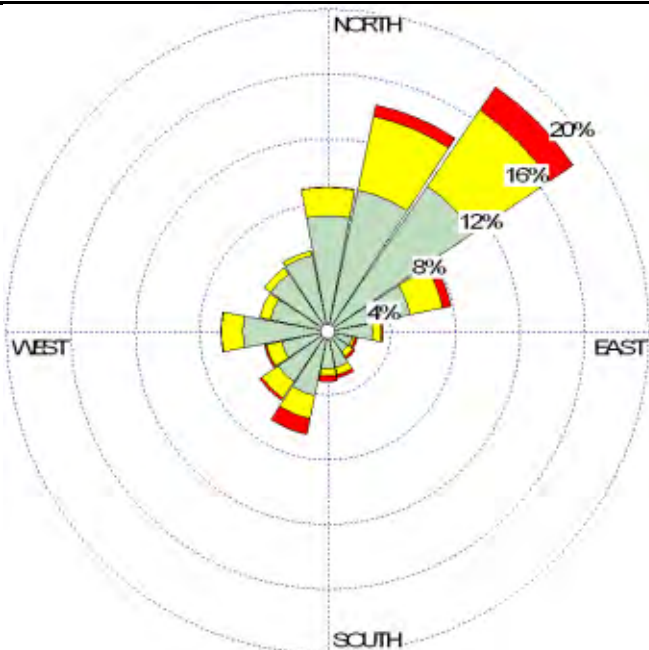
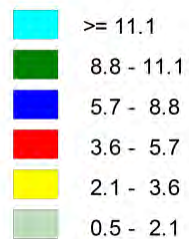


April

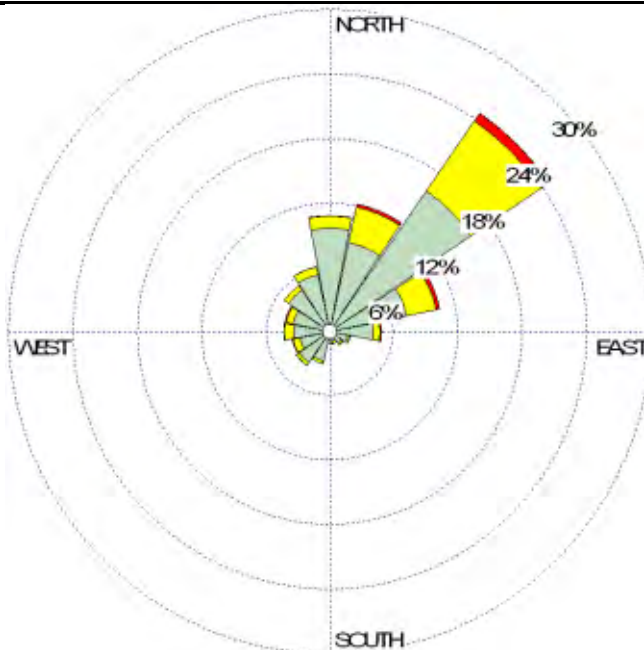
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Sunset Beach (May - August)

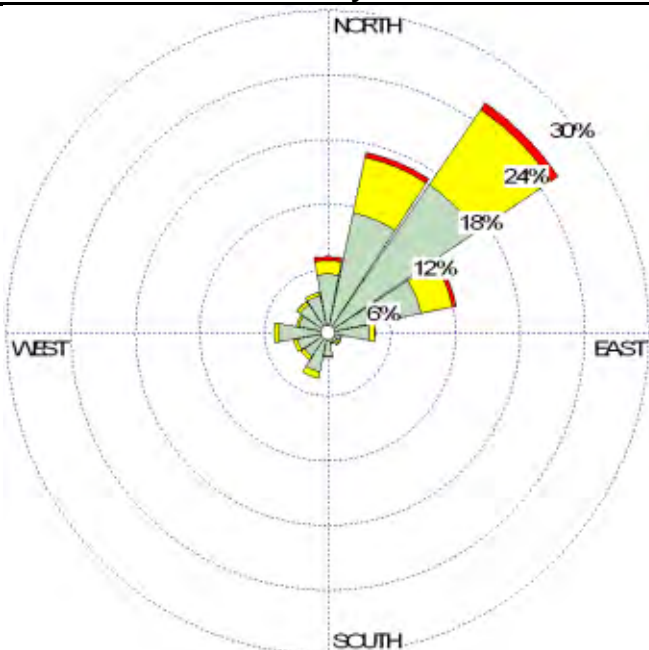
Wind Speed [m/s]



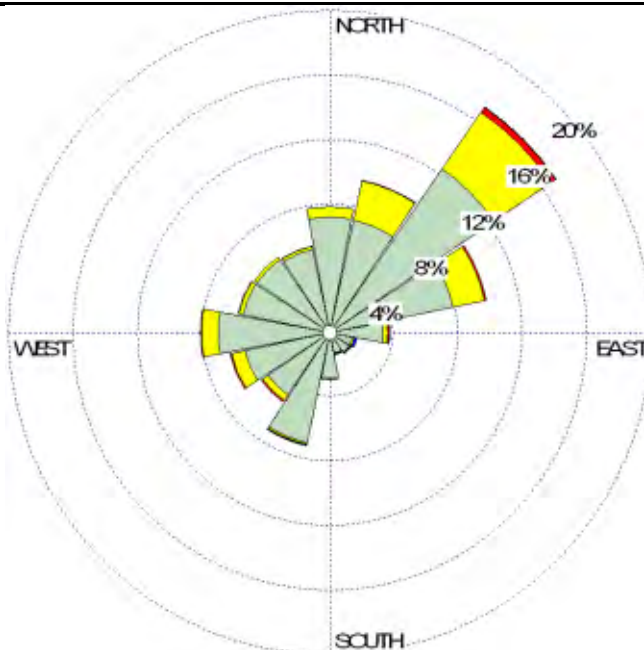
May



June



July

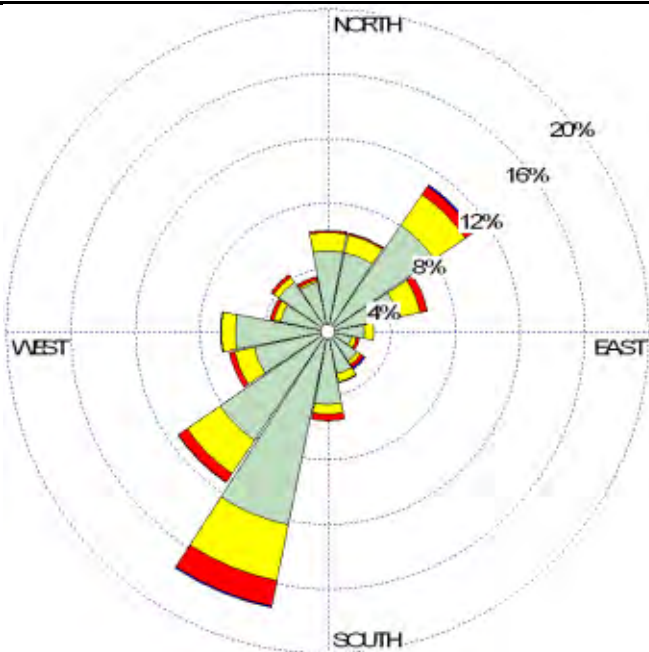
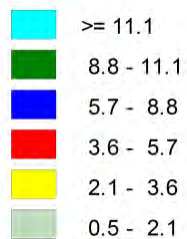


August

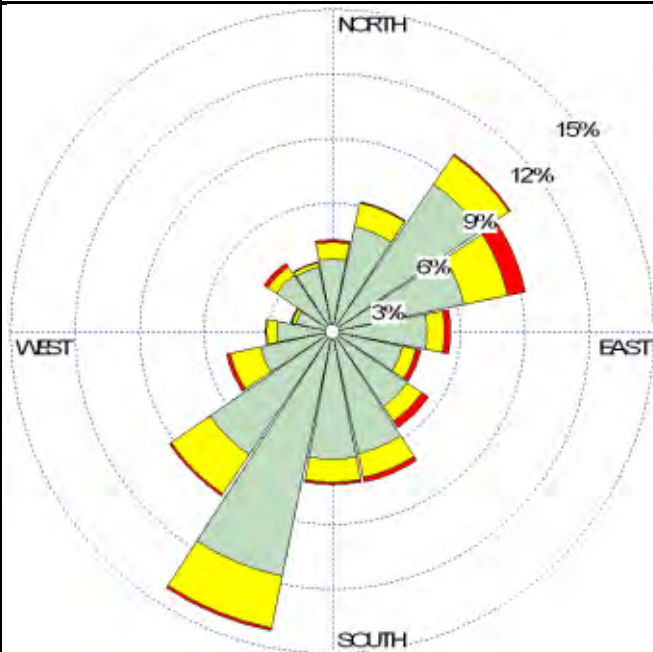
Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Typical Wind Rose for Each Month Sunset Beach (September - December)

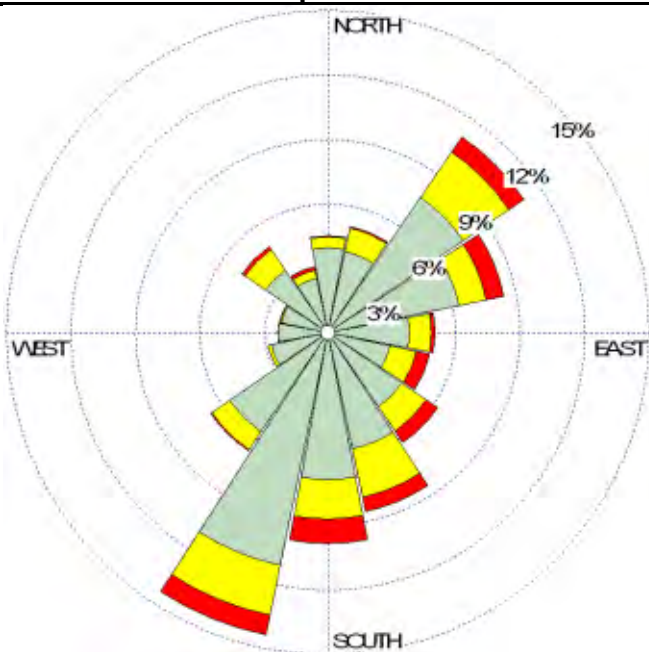
Wind Speed [m/s]



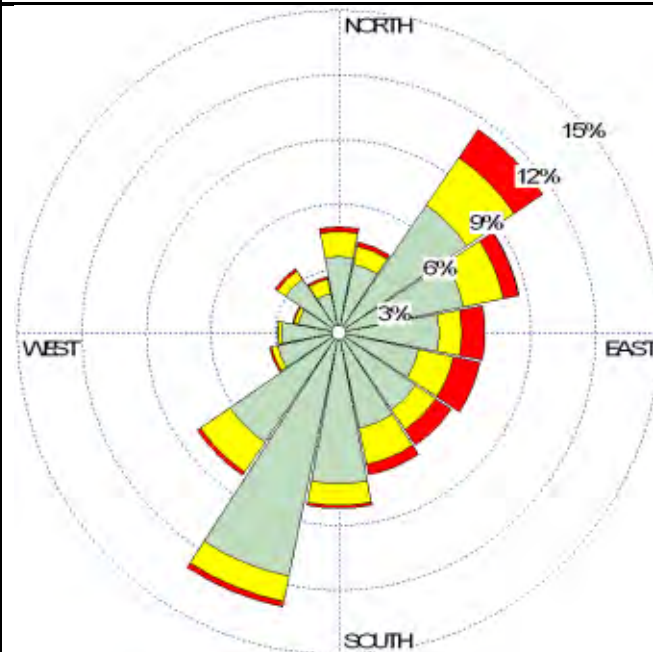
September



October



November



December

Note: Conventionally based on percent hours of wind blowing toward a particular direction.

Attachment C - Copy of DIGITAL Visual FORTRAN Processing Code

Program ISHPROCESS

```

***
  IMPLICIT INTEGER(A-Z)

  integer i, j, k, ii, jj, kk, l, ll, idummy
  integer
&USAF(9), NCDC, HrMn, Hgt, temp, DewPt, Rhx
&dayck, usafck, monthck
  integer vi sby, di r, month, year, day, hr
  integer i vi sby, i di r, i month, i year, i day, i hr, i hgt
  integer sn1(18), sn2(18), i si te
  integer Spdmonthct(9, 12, 37)
  integer si tenumber(18), si teeasting(18), si tenorthing(18)
  integer stati onnumber(7), stati oneasting(7), stati onnorthing(7)
  integer n1(18), n2(18)
  integer doi t
  integer ahead
  integer ndi r(12), nspd(12), nvi sby(12), nhgt(12)
  integer season

  integer dayck, ni ghthrscl r, hourscl ear, hourssunny
  integer days50, days75, days90
  integer THP50, THP75, THP90
  integer ni ghts50, ni ghts75, ni ghts90
  integer total days, total hourssunny, total hourscl ear

  real v(200, 2), roc
  real d, d1(18), d2(18), wt1(18), wt2(18)
  real Pressure, rdummy
  real spd, i spd
  real hour, i hour, hourck
  real di rcombi ned, spdcombi ned, vi sbycombi ned, vi sby2, hgtcombi ned
  real vi sbyextra, del tavi sby
  real di rtotal(12), spdtotal(12), vi sbytotal(12), hgttotal(12)

  character*40 si tename(18), stati onname(7), fi lename
  character*8 date
  character*80 cdummy

!!!  Read in site and weather station loactions and names
OPEN (11, FILE='ALL LOCATIONS UTM.csv', STATUS='OLD',
- ACCESS='SEQUENTIAL', ACTION='READ', FORM='FORMATTED')

  Do i=1, 7
    Read (11, *)stati onnumber(i), stati onnorthing(i)
& , stati oneasting(i), stati onname(i)
  enddo

  Do i=1, 18
    Read (11, *)si tenumber(i), si tenorthing(i), si teeasting(i),
& si tename(i)
  enddo

  close(11)

!!!  find the two closest stations and their distance to the site

OPEN (22, FILE='di stance.dat', STATUS='REPLACE',
& ACTION='WRITE')
do i=1, 18

  d1(i)=999999
  d2(i)=999999

  do ii=1, 7
    d=sqrt(
& (real(stati oneasting(ii))-real(si teeasting(i)))**2 +
& (real(stati onnorthing(ii))-real(si tenorthing(i)))**2)

    if(d.lt.d1(i))then
      d1(i)=d
      n1(i)=ii
    endif
  enddo

!  Write (22, *)i, ii, stati oneasting(ii), si teeasting(i),
! & stati onnorthing(ii), si tenorthing(i)
!  write(22, *)d, d1(i), d2(i), n1(i), n2(i)

```

NOAA code.txt

```

enddo

do ii=1,7
    d=sqrt(
& (real(stati oneasting(ii))-real(sit eeasting(i)))**2 +
& (real(stati onnorthing(ii))-real(sit enorthing(i)))**2)

        if(d.gt.d1(i).and.d.lt.d2(i))then
            n2(i)=i
            d2(i)=d
        endi f

! Write (22,*)i,ii, stati oneasting(ii), sit eeasting(i),
! & stati onnorthing(ii), sit enorthing(i)
! write(22,*)d,d1(i),d2(i),n1(i),n2(i)
enddo

wt1(i)=d2(i)/(d1(i)+d2(i))
wt2(i)=d1(i)/(d1(i)+d2(i))
sn1(i)=stati onnumber(n1(i))
sn2(i)=stati onnumber(n2(i))
!Write (22,*)"*****",i,d1(i),d2(i),n1(i),n2(i),wt1(i),wt2(i)
Write (22,'(i10,a40)')i," " //sit ename(i)
Write (22,'(i10,a40,f10.1,f10.4)')sn1(i),
& " " //stati onname(n1(i)),d1(i),wt1(i)
Write (22,'(i10,a40,f10.1,f10.4)')sn2(i),
& " " //stati onname(n2(i)),d2(i),wt2(i)
enddo

close(22)

!!!write out a data file for each site with the two closest sites

doit=0
if(doit.eq.1)then

do isite=1,18
PRINT*,isite

        if (isite.lt.10) then
            write(filename,'(a24,i1,a4)')
& 'c:\NOAA\site\data\01_WD_0',isite,'.txt'
        else
            write(filename,'(a24,i2,a4)')
& 'c:\NOAA\site\data\01_WD_',isite,'.txt'
        endi f
        OPEN (unit=20,FILE=filename,STATUS='replace',ACTION='WRITE')
        Write (20,'(a40)')sit ename(isite)

        if (isite.lt.10) then
            write(filename,'(a24,i1,a4)')
& 'c:\NOAA\site\data\02_WD_0',isite,'.txt'
        else
            write(filename,'(a24,i2,a4)')
& 'c:\NOAA\site\data\02_WD_',isite,'.txt'
        endi f
        OPEN (unit=21,FILE=filename,STATUS='replace',ACTION='WRITE')
        Write (21,'(a40)')sit ename(isite)

        OPEN (11,FILE='Coastal Weather Data 071212.csv',STATUS="OLD",
- ACCESS="SEQUENTIAL",ACTION="READ",FORM="FORMATTED")
        Read (11,*) !read header

2 Read (11,*,END=3)USAFck,NCDC,Date,HrMn,Dir,Spd,Hgt,Vi sby,Temp,
& DewPt,Pressure,Rhx

        hour=aint(real(hrmn/100))+1
        if(hour.ne.hourck)then
            if(usafck.eq.sn1(isite))then
                read(date,'(i4,i2,i2)')year,month,day
                hourck=hour
                write(20,'(6i8,f8.1,2i8)')USAFck,year,month,day,aint(hour),
& dir,spd,vi sby,hgt
            endi f
            if(usafck.eq.sn2(isite))then
                read(date,'(i4,i2,i2)')year,month,day

```

```

                                NOAA code. txt
                                hourck=hour
                                write(21, '(6i 8, f8. 1, 2i 8)')USAFck, year, month, day, i nt(hour),
&                                di r, spd, vi sby, hgt
                                endi f
                                go to 2
3    conti nue
                                close(11)
                                close(20)
                                close(21)
                                enddo    !i stie
                                endi f    !doi t

```

!!!write out a data file for each site with just one measurement per hour weighted for the two closest sites

```

                                do i t=0
                                i f(doi t. eq. 1)then
                                do i site=1, 18
                                print*, i site
                                i f (i site. l t. 10) then
                                write(fi lename, '(a24, i 1, a4)')
&                                'c:\NOAA\si tedata\01_WD_0', i site, '. txt'
                                el se
                                write(fi lename, '(a24, i 2, a4)')
&                                'c:\NOAA\si tedata\01_WD_', i site, '. txt'
                                endi f
                                OPEN (uni t=20, FI LE=fi lename, STATUS=' ol d', ACTI ON=' read')
                                read (20, '(a40)')si tename(i site)

                                i f (i site. l t. 10) then
                                write(fi lename, '(a24, i 1, a4)')
&                                'c:\NOAA\si tedata\02_WD_0', i site, '. txt'
                                el se
                                write(fi lename, '(a24, i 2, a4)')
&                                'c:\NOAA\si tedata\02_WD_', i site, '. txt'
                                endi f
                                OPEN (uni t=21, FI LE=fi lename, STATUS=' ol d', ACTI ON=' read')
                                read (21, '(a40)')si tename(i site)

                                i f (i site. l t. 10) then
                                write(fi lename, '(a22, i 1, a4)')
&                                'c:\NOAA\si tedata\WDC_0', i site, '. txt'
                                el se
                                write(fi lename, '(a22, i 2, a4)')
&                                'c:\NOAA\si tedata\WDC_', i site, '. txt'
                                endi f
                                OPEN (uni t=31, FI LE=fi lename, STATUS=' repl ace', ACTI ON=' wri te')
                                wri te (31, '(a40)')si tename(i site)

!5    fl ag=0
!    rew i nd(21)
!    read (21, '(a40)')si tename(i site)
5    ahead=0
    i f(ahead. eq. 0) then
    read(21, '(6i 8, f8. 1, 2i 8)', END=8)USAFck, i year, i month, i day, i hr,
&    i di r, i spd, i vi sby, i hgt
    read(20, '(6i 8, f8. 1, 2i 8)', END=8)USAFck, year, month, day, hr,
&    di r, spd, vi sby, hgt
    endi f

    i f(ahead. eq. 1) then
    read(21, '(6i 8, f8. 1, 2i 8)', END=8)USAFck, i year, i month, i day, i hr,
&    i di r, i spd, i vi sby, i hgt
    endi f
    i f(ahead. eq. 2) then
    read(20, '(6i 8, f8. 1, 2i 8)', END=8)USAFck, year, month, day, hr,
&    di r, spd, vi sby, hgt
    endi f

    i f(i year. eq. year. and. i month. eq. month. and.
&    i day. eq. day. and. i hr. eq. hr) then

```

```

NOAA code. txt
di rcombi ned=di r*wt1(i si te)+i di r*wt2(i si te)
i f(di r. eq. 999)di rcombi ned=i di r
i f(i di r. eq. 999)di rcombi ned=di r
i f(di r. eq. 999. and. i di r. eq. 999)fl ag=1

spdcombi ned=spd*wt1(i si te)+i spd*wt2(i si te)
i f(di r. eq. 999)spdcombi ned=i spd
i f(i di r. eq. 999)spdcombi ned=spd
i f(di r. eq. 999. and. i di r. eq. 999)fl ag=1

vi sbycombi ned=vi sby*wt1(i si te)+i vi sby*wt2(i si te)
i f(vi sby. eq. 99999)vi sbycombi ned=i vi sby
i f(i vi sby. eq. 99999)vi sbycombi ned=vi sby
i f(vi sby. eq. 99999. and. i vi sby. eq. 99999)fl ag=1

hgtcombi ned=hgt*wt1(i si te)+i hgt*wt2(i si te)
i f(hgt. eq. 99999)hgtcombi ned=i hgt
i f(i hgt. eq. 99999)hgtcombi ned=hgt
i f(hgt. eq. 99999. and. i hgt. eq. 99999)fl ag=1

i f(fl ag. ne. 1)then
wri te(cdummy, '(4i8, 4f8. 1)') year, month, day, hr,
& di rcombi ned, spdcombi ned, vi sbycombi ned, hgtcombi ned
!pri nt*, i si te, cdummy
wri te(31, '(a80)') cdummy
el se
fl ag=0
endi f

ahead=0
el se

total =year*365*24+month*31*24+day*24+hr
i total =i year*365*24+i month*31*24+i day*24+i hr

i f(total . gt. i total ) then
ahead=1

el se
ahead=2

endi f

endi f

goto 5

8 conti nue

cl ose(20)
cl ose(21)
cl ose(31)

enddo !i si te
endi f !doi t

!calculate sunny day metrics and write to a file

doi t=0
i f(doi t. eq. 1)then

OPEN (uni t=21, FI LE=' c: \NOAA\Sunny. txt'
& , STATUS=' repl ace', ACTI ON=' wri te' )
OPEN (uni t=22, FI LE=' c: \NOAA\Sunny Rollup. txt'
& , STATUS=' repl ace', ACTI ON=' wri te' )
wri te(22, '(a15)')' Average % Clear'

do i si te=1, 18
pri nt*, "Calculating Sunny Days at Site: ", i si te
wri te(21, '(i 4, a50)')i si te, si tename(i si te)

i f (i si te. l t. 10) then
& wri te(fi lename, '(a22, i 1, a4)')
' c: \NOAA\si tedata\WDC_0', i si te, '. txt'
el se
& wri te(fi lename, '(a22, i 2, a4)')
' c: \NOAA\si tedata\WDC_', i si te, '. txt'

```

NOAA code.txt

```

        endi f
        OPEN (uni t=41, FI LE=fi lename, STATUS=' ol d' , ACTI ON=' read' )
        read (41, '(a40)' )si tename(i si te)
11      i f(day. ne. dayck) then
        i f (real (hourssunny)/13. gt. 0. 5)days50=days50+1
        i f (real (hourssunny)/13. gt. 0. 75)days75=days75+1
        i f (real (hourssunny)/13. gt. 0. 9)days90=days90+1
        i f (real (hourscl ear)/24. gt. 0. 5)thpcl r50=thpcl r50+1
        i f (real (hourscl ear)/24. gt. 0. 75)thpcl r75=thpcl r75+1
        i f (real (hourscl ear)/24. gt. 0. 9)thpcl r90=thpcl r90+1
        i f (real (ni ghthrsl ear)/11. gt. 0. 5)ni ghtscl r50=ni ghtscl r50+1
        i f (real (ni ghthrsl ear)/11. gt. 0. 75)ni ghtscl r75=ni ghtscl r75+1
        i f (real (ni ghthrsl ear)/11. gt. 0. 9)ni ghtscl r90=ni ghtscl r90+1
        total days=total days+1

        hourssunny=0
        hourscl ear=0
        ni ghthrsl ear=0
        dayck=day

        endi f

        read(41, '(4i 8, 4f8. 1)' , END=13)
& year, month, day, hr,
& di rcombi ned, spdcombi ned, vi sbycombi ned, hgtcombi ned

        i f(hgtcombi ned. eq. 22000) then
        hourscl ear=hourscl ear+1
        total hourscl ear=total hourscl ear+1
        i f(hr. ge. 6. and. hr. l t. 19. and. hgtcombi ned. eq. 22000) then
        hourssunny=hourssunny+1
        total hourssunny=total hourssunny+1
        endi f
        endi f
        ni ghthrsl ear=hourscl ear-hourssunny

13      goto 11
        conti nue

        wri te(22, '(i 4, a50)' )i si te, si tename(i si te)
        wri te(22, '(a20, 2i 8, F10. 4)' ), ' DAYS
&total hourssunny, total days*13,
&real (total hourssunny)/real (total days*13)
        wri te(22, '(a20, 2i 8, F10. 4)' ), ' NI GHTS
&total hourscl ear- total hourssunny, total days*11,
&real (total hourscl ear- total hourssunny)/real (total days*11)
        wri te(22, '(a20, 2i 8, F10. 4)' ), ' 24-HOUR PERI OD
&total hourscl ear, total days*24,
&real (total hourscl ear)/real (total days*24)

        total hourscl ear=0
        total hourssunny=0

        wri te(21, '(a20, 4i 8, 3F10. 2)' )"DAYS
&days50, days75, days90, total days,
&real (days50)/real (total days), real (days75)/real (total days),
& real (days90)/real (total days)
        wri te(21, '(a20, 4i 8, 3F10. 2)' )"NI GHTS
&ni ghtscl r50, ni ghtscl r75, ni ghtscl r90, total days,
&real (ni ghtscl r50)/real (total days),
& real (ni ghtscl r75)/real (total days),
& real (ni ghtscl r90)/real (total days)
        wri te(21, '(a20, 4i 8, 3F10. 2)' )"24-HOUR PERI OD
&THPcl r50, THPcl r75, THPcl r90, total days,
&real (THPcl r50)/real (total days), real (THPcl r75)/real (total days),
& real (THPcl r90)/real (total days)

        total days=0
        days50=0
        days75=0
        days90=0
        THPcl r50=0
        THPcl r75=0
        THPcl r90=0
        ni ghtscl r50=0
        ni ghtscl r75=0
        ni ghtscl r90=0

```



```

        enddo ! i site

        close(41)
        close(21)
        close(22)

        endif ! do it

        ! calculate foggy metrics and write to a file

        do it=0
        if(do it.eq. 1)then

            & OPEN (unit=21, FILE='c:\NOAA\Foggy.txt'
                , STATUS='replace', ACTION='write')

            & OPEN (unit=22, FILE='c:\NOAA\Foggy Rollup.txt'
                , STATUS='replace', ACTION='write')
            write(22, '(a15)') 'Average % Clear'

            do i site=1, 18
            print*, "Calculating Foggy Days at Site: ", i site
            write(21, '(i4, a50)') i site, site name(i site)

                if (i site.lt. 10) then
                    & write(filename, '(a22, i1, a4)')
                    'c:\NOAA\site data\WDC_0', i site, '.txt'
                    else
                    & write(filename, '(a22, i2, a4)')
                    'c:\NOAA\site data\WDC_', i site, '.txt'
                endif
                OPEN (unit=41, FILE=filename, STATUS='old', ACTION='read')
                read (41, '(a40)') site name(i site)

15         if(day.ne. dayck) then
            if (real (hourssunny)/13. gt. 0. 5) days50=days50+1
            if (real (hourssunny)/13. gt. 0. 75) days75=days75+1
            if (real (hourssunny)/13. gt. 0. 9) days90=days90+1
            if (real (hoursclear)/24. gt. 0. 5) thpcl r50=thpcl r50+1
            if (real (hoursclear)/24. gt. 0. 75) thpcl r75=thpcl r75+1
            if (real (hoursclear)/24. gt. 0. 9) thpcl r90=thpcl r90+1
            if (real (ni ghthrscl ear)/11. gt. 0. 5) ni ghtscl r50=ni ghtscl r50+1
            if (real (ni ghthrscl ear)/11. gt. 0. 75) ni ghtscl r75=ni ghtscl r75+1
            if (real (ni ghthrscl ear)/11. gt. 0. 9) ni ghtscl r90=ni ghtscl r90+1
            total days=total days+1

            hourssunny=0
            hoursclear=0
            ni ghthrscl ear=0
            dayck=day

            endif

            read(41, '(i8, 4f8. 1)', END=17)
            & year, month, day, hr,
            & di rcombi ned, spdcombi ned, vi sbycombi ned, hgtcombi ned

            if(vi sbycombi ned.le. 1609) then
                hoursclear=hoursclear+1
                total hoursclear=total hoursclear+1
                if(hr.ge. 6. and. hr.lt. 19. and. vi sbycombi ned.le. 1609) then
                    hourssunny=hourssunny+1
                    total hourssunny=total hourssunny+1
                endif
            endif
            ni ghthrscl ear=hoursclear-hourssunny

17         goto 15
        conti nue

        write(22, '(i4, a50)') i site, site name(i site)
        write(22, '(a20, 2i8, F10. 4)', ' DAYS',
        & total hourssunny, total days*13,
        & real (total hourssunny)/real (total days*13)
        write(22, '(a20, 2i8, F10. 4)', ' NI GHTS'

```

```

                                NOAA code. txt
&total hoursclear-total hourssunny, total days*11,
&real (total hoursclear-total hourssunny)/real (total days*11)
  write(22, '(a20, 2i8, F10.4)', '24-HOUR PERIOD',
&total hoursclear, total days*24,
&real (total hoursclear)/real (total days*24)

  total hoursclear=0
  total hourssunny=0

  write(21, '(a20, 4i8, 3F10.4)') "DAYS",
&days50, days75, days90, total days,
&real (days50)/real (total days), real (days75)/real (total days),
& real (days90)/real (total days)
  write(21, '(a20, 4i8, 3F10.4)') "NIGHTS",
&ni ghtscl r50, ni ghtscl r75, ni ghtscl r90, total days,
&real (ni ghtscl r50)/real (total days),
& real (ni ghtscl r75)/real (total days),
& real (ni ghtscl r90)/real (total days)
  write(21, '(a20, 4i8, 3F10.4)') "24-HOUR PERIOD",
&THPcl r50, THPcl r75, THPcl r90, total days,
&real (THPcl r50)/real (total days), real (THPcl r75)/real (total days),
& real (THPcl r90)/real (total days)

  total days=0
  days50=0
  days75=0
  days90=0
  THPcl r50=0
  THPcl r75=0
  THPcl r90=0
  ni ghtscl r50=0
  ni ghtscl r75=0
  ni ghtscl r90=0

  enddo ! i site

  close(41)
  close(21)
  close(22)

  endif ! do it

! write out daily wind files for each site
do it=0
if(doit.eq.1)then

do i site=1, 18
print*, i site

do imonth=1, 12

  if (i site.lt.10) then
    write(filename, '(a21, i1, a1, i2, a4)')
& 'c:\NOAA\winddata\WD_0', i site, '_', imonth, '.txt'
  else
    write(filename, '(a20, i2, a1, i2, a4)')
& 'c:\NOAA\winddata\WD_', i site, '_', imonth, '.txt'
  endif
  jj=20+imonth
  OPEN (unit=jj, FILE=filename, STATUS='replace', ACTION='write')
  write (jj, '(a12)') 'LAKES FORMAT'

  if (i site.lt.10) then
    write(filename, '(a22, i1, a4)')
& 'c:\NOAA\si tedata\WDC_0', i site, '.txt'
  else
    write(filename, '(a22, i2, a4)')
& 'c:\NOAA\si tedata\WDC_', i site, '.txt'
  endif
  OPEN (unit=41, FILE=filename, STATUS='old', ACTION='read')
  read (41, '(a40)') si tename(i site)

  enddo

19 read(41, '(4i8, 3f8.1)', END=21)
& year, month, day, hr, di rcombi ned, spdcombi ned, vi sbycombi ned

  jj=20+month
  write(jj, '(7i10)')

```

```

& i s i t e, y e a r, m o n t h, d a y, h r,
& i n t ( a n i n t ( d i r c o m b i n e d ) ) , i n t ( a n i n t ( s p d c o m b i n e d ) )

21   g o t o 19
    c o n t i n u e

        c l o s e ( 4 1 )
        d o i m o n t h = 1, 12
        j j = 20 + i m o n t h
        c l o s e ( j j )
        e n d d o

        e n d d o ! i s i t e
        e n d i f ! d o i t

!   w r i t e o u t a v e r a g e s e a s o n f i l e s f o r e a c h s i t e

        d o i t = 0
        i f ( d o i t . e q . 1 ) t h e n

                O P E N ( u n i t = 21, F I L E = ' c : \ N O A A \ s e a s o n d a t a \ S e a s o n D a t a . t x t '
& , S T A T U S = ' r e p l a c e ' , A C T I O N = ' w r i t e ' )

                d o i s i t e = 1, 18
                p r i n t *, i s i t e
                    i f ( i s i t e . l t . 10 ) t h e n
                        w r i t e ( f i l e n a m e, ' ( a 2 2, i 1, a 4 ) ' )
& ' c : \ N O A A \ s i t e d a t a \ W D C _ 0 ', i s i t e, '. t x t '
                    e l s e
                        w r i t e ( f i l e n a m e, ' ( a 2 2, i 2, a 4 ) ' )
& ' c : \ N O A A \ s i t e d a t a \ W D C _ ', i s i t e, '. t x t '
                    e n d i f
                O P E N ( u n i t = 41, F I L E = f i l e n a m e, S T A T U S = ' o l d ' , A C T I O N = ' r e a d ' )
                r e a d ( 41, ' ( a 40 ) ' ) s i t e n a m e ( i s i t e )

23   r e a d ( 41, ' ( 4 i 8, 4 f 8. 1 ) ' , E N D = 25 )
& y e a r, m o n t h, d a y, h r,
& d i r c o m b i n e d, s p d c o m b i n e d, v i s b y c o m b i n e d, h g t c o m b i n e d

        c a l l g e t s e a s o n ( m o n t h, d a y, s e a s o n )

        i f ( d i r c o m b i n e d . n e . 999 ) t h e n
            d i r t o t a l ( s e a s o n ) = d i r t o t a l ( s e a s o n ) + d i r c o m b i n e d
            n d i r ( s e a s o n ) = n d i r ( s e a s o n ) + 1
        e n d i f
        i f ( s p d c o m b i n e d . n e . 999 ) t h e n
            s p d t o t a l ( s e a s o n ) = s p d t o t a l ( s e a s o n ) + s p d c o m b i n e d
            n s p d ( s e a s o n ) = n s p d ( s e a s o n ) + 1
        e n d i f
        i f ( v i s b y c o m b i n e d . n e . 99999 ) t h e n
            v i s b y t o t a l ( s e a s o n ) = v i s b y t o t a l ( s e a s o n ) + v i s b y c o m b i n e d
            n v i s b y ( s e a s o n ) = n v i s b y ( s e a s o n ) + 1
        e n d i f
        i f ( h g t c o m b i n e d . n e . 99999 ) t h e n
            h g t t o t a l ( s e a s o n ) = h g t t o t a l ( s e a s o n ) + h g t c o m b i n e d
            n h g t ( s e a s o n ) = n h g t ( s e a s o n ) + 1
        e n d i f

25   g o t o 23
    c o n t i n u e

        d o s e a s o n = 1, 4
        w r i t e ( 21, ' ( 2 i 4, 4 f 10. 1, a 50 ) ' ) i s i t e, s e a s o n,
& r e a l ( d i r t o t a l ( s e a s o n ) / r e a l ( n d i r ( s e a s o n ) ) ) ,
& r e a l ( s p d t o t a l ( s e a s o n ) / r e a l ( n s p d ( s e a s o n ) ) ) ,
& r e a l ( v i s b y t o t a l ( s e a s o n ) / r e a l ( n v i s b y ( s e a s o n ) ) ) ,
& r e a l ( h g t t o t a l ( s e a s o n ) / r e a l ( n h g t ( s e a s o n ) ) ) , s i t e n a m e ( i s i t e )
        e n d d o

        c l o s e ( 41 )

        e n d d o ! i s i t e

        c l o s e ( 21 )

        e n d i f ! d o i t

```

```

                                NOAA code. txt
! calculate cloudy day metrics and write to a file

doi t=0
i f (doi t. eq. 1) then

                                OPEN (uni t=21, FILE=' c: \NOAA\Cl oudy. txt'
&                                , STATUS=' repl ace' , ACTION=' wri te' )

do i si te=1, 18
print *, "Calculating Cloudy Days at Site: ", i si te
wri te(21, ' (i 4, a50)' ) i si te, si tename(i si te)

                                i f (i si te. l t. 10) then
&                                wri te(fi lename, ' (a22, i 1, a4)' )
                                el se
&                                wri te(fi lename, ' (a22, i 2, a4)' )
                                endi f
                                OPEN (uni t=41, FILE=fi lename, STATUS=' ol d' , ACTION=' read' )
                                read (41, ' (a40)' ) si tename(i si te)

31 i f (day. ne. dayck) then
i f (real (hourssunny)/13. l t. 0. 5) days50=days50+1
i f (real (hourssunny)/13. l t. 0. 75) days75=days75+1
i f (real (hourssunny)/13. l t. 0. 9) days90=days90+1
i f (real (hourscl ear)/24. l t. 0. 5) thpcl r50=thpcl r50+1
i f (real (hourscl ear)/24. l t. 0. 75) thpcl r75=thpcl r75+1
i f (real (hourscl ear)/24. l t. 0. 9) thpcl r90=thpcl r90+1
i f (real (ni ghthrscl ear)/11. l t. 0. 5) ni ghtscl r50=ni ghtscl r50+1
i f (real (ni ghthrscl ear)/11. l t. 0. 75) ni ghtscl r75=ni ghtscl r75+1
i f (real (ni ghthrscl ear)/11. l t. 0. 9) ni ghtscl r90=ni ghtscl r90+1
total days=total days+1

hourssunny=0
hourscl ear=0
ni ghthrscl ear=0
dayck=day

endi f

                                read(41, ' (4i 8, 4f8. 1)' , END=39)
& year, month, day, hr,
& di rcombi ned, spdcombi ned, vi sbycombi ned, hgtcombi ned

                                i f (hgtcombi ned. eq. 22000) then
                                hourscl ear=hourscl ear+1
                                i f (hr. ge. 6. and. hr. l t. 19. and. hgtcombi ned. eq. 22000) then
                                hourssunny=hourssunny+1
                                endi f
                                endi f
                                ni ghthrscl ear=hourscl ear-hourssunny

39 goto 31
conti nue

                                wri te(21, ' (a20, 4i 8, 3F10. 2)' )" DAYS                                ",
& days50, days75, days90, total days,
& real (days50)/real (total days), real (days75)/real (total days),
& real (days90)/real (total days)
                                wri te(21, ' (a20, 4i 8, 3F10. 2)' )" NI GHTS                                ",
& ni ghtscl r50, ni ghtscl r75, ni ghtscl r90, total days,
& real (ni ghtscl r50)/real (total days),
& real (ni ghtscl r75)/real (total days),
& real (ni ghtscl r90)/real (total days)
                                wri te(21, ' (a20, 4i 8, 3F10. 2)' )" 24-HOUR PERI OD                                ",
& THPcl r50, THPcl r75, THPcl r90, total days,
& real (THPcl r50)/real (total days), real (THPcl r75)/real (total days),
& real (THPcl r90)/real (total days)

total days=0
days50=0
days75=0
days90=0
THPcl r50=0
THPcl r75=0
THPcl r90=0
ni ghtscl r50=0

```

NOAA code.txt

```

ni ghtscl r75=0
ni ghtscl r90=0

enddo !i site

close(41)
close(21)

endif !doit

!calculate sunny day metrics for each season and write to a file

doit=0
if(doit.eq.1)then

do s=1, 4

write(filename, '(a13,i1,a4)')'c:\NOAA\Sunny',s,'.txt'
OPEN (unit=21,FILE=filename
& ,STATUS='replace',ACTION='write')

do i site=1, 18
print*, "Calculating Sunny Days at Site:", i site, s
write(21, '(i4,a50)') i site, sitename(i site)

if (i site.lt.10) then
& write(filename, '(a22,i1,a4)')
'c:\NOAA\sitedata\WDC_0', i site, '.txt'
else
& write(filename, '(a22,i2,a4)')
'c:\NOAA\sitedata\WDC_', i site, '.txt'
endif
OPEN (unit=41,FILE=filename,STATUS='old',ACTION='read')
read (41, '(a40)') sitename(i site)

41 if(day.ne.dayck.and.season.eq.s)then
if (real (hourssunny)/13.gt.0.5)days50=days50+1
if (real (hourssunny)/13.gt.0.75)days75=days75+1
if (real (hourssunny)/13.gt.0.9)days90=days90+1
if (real (hourscl ear)/24.gt.0.5)thpcl r50=thpcl r50+1
if (real (hourscl ear)/24.gt.0.75)thpcl r75=thpcl r75+1
if (real (hourscl ear)/24.gt.0.9)thpcl r90=thpcl r90+1
if (real (ni ghthrscl ear)/11.gt.0.5)ni ghtscl r50=ni ghtscl r50+1
if (real (ni ghthrscl ear)/11.gt.0.75)ni ghtscl r75=ni ghtscl r75+1
if (real (ni ghthrscl ear)/11.gt.0.9)ni ghtscl r90=ni ghtscl r90+1
total days=total days+1

hourssunny=0
hourscl ear=0
ni ghthrscl ear=0
dayck=day

endif

read(41, '(4i8,4f8.1)',END=49)
& year,month,day,hr,
& di rcombi ned,spdcmbi ned,vi sbycombi ned,hgtcombi ned

call getseason(month,day,season)

if(s.eq.season)then
if(hgtcombi ned.eq.22000)then
hourscl ear=hourscl ear+1
total hourscl ear=total hourscl ear+1
if(hr.ge.6.and.hr.lt.19.and.hgtcombi ned.eq.22000)then
hourssunny=hourssunny+1
total hourssunny=total hourssunny+1
endif
endif
ni ghthrscl ear=hourscl ear-hourssunny
endif

goto 41
49 conti nue

write(21, '(a20,5i8,3f10.2)') "DAYS",
&s,days50,days75,days90,total days,
&real (days50)/real (total days),real (days75)/real (total days),

```

```

NOAA code.txt
& real (days90)/real (total days)
  write(21, '(a20, 5i8, 3F10.2)') "NI GHTS      ",
&s, ni ghtscl r50, ni ghtscl r75, ni ghtscl r90, total days,
&real (ni ghtscl r50)/real (total days),
& real (ni ghtscl r75)/real (total days),
& real (ni ghtscl r90)/real (total days)
  write(21, '(a20, 5i8, 3F10.2)') "24-HOUR PERI OD      ",
&s, THPcl r50, THPcl r75, THPcl r90, total days,
&real (THPcl r50)/real (total days), real (THPcl r75)/real (total days),
& real (THPcl r90)/real (total days)

  total days=0
  days50=0
  days75=0
  days90=0
  THPcl r50=0
  THPcl r75=0
  THPcl r90=0
  ni ghtscl r50=0
  ni ghtscl r75=0
  ni ghtscl r90=0

enddo !i site

close(41)
close(21)
close(22)

enddo !season

endif !doit

! EXTRAPOLATE VISIBILITY INFORMATION TO 20 NM (37040 METERS)

doit=0
if(doit.eq.1)then

do i site=1, 18
  print*, "Calculating Extrapolated Visibility at Site:", i site
    if (i site.lt.10) then
      write(filename, '(a21, i1, a4)')
& 'c:\NOAA\visdata\WDV_0', i site, '.txt'
    else
      write(filename, '(a20, i2, a4)')
& 'c:\NOAA\visdata\WDV_', i site, '.txt'
    endif
  OPEN (unit=21, FILE=filename, STATUS='replace', ACTION='write')
  write (21, '(a40)') sitename(i site)

  if (i site.lt.10) then
& 'c:\NOAA\si tedata\WDC_0', i site, '.txt'
  else
& 'c:\NOAA\si tedata\WDC_', i site, '.txt'
  endif
  OPEN (unit=41, FILE=filename, STATUS='old', ACTION='read')
  read (41, '(a40)') sitename(i site)

  do i=200, 1, -1 !load the array
    read(41, '(4i8, 4f8.1)')
& year, month, day, hr,
& dircombed, spdcombed, v(i, 1), hgtcombed
    v(i, 2)=v(i, 1)
  enddo
  write(21, '(2f10.1)') v(200, 1), v(200, 2)

51 do i=199, 1, -1 !shift the array forward one
    v(i+1, 1)=v(i, 1)
    v(i+1, 2)=v(i, 2)
  enddo
  write(21, '(2f10.1)') v(200, 1), v(200, 2)
  read(41, '(4i8, 4f8.1)', END=59)
& year, month, day, hr,
& dircombed, spdcombed, v(1, 1), hgtcombed
  v(1, 2)=v(1, 1)

```

```

                                NOAA code.txt
if(v(100,1).ge.16000)then !center the segment of high visby in the array
53  l=1
    if(v(100-l,1).ge.16000)l=l+1
    if(v(100-l,1).lt.16000.or.l.eq.99)goto 55
55  goto 53
    continue

    if(l.gt.2)then
    do ii=1,aint(real(l/2))

        do i=199,1,-1                !shift the array forward one
        v(i+1,1)=v(i,1)
        v(i+1,2)=v(i,2)
        enddo
        write(21,'(2f10.1)')v(200,1),v(200,2)
        read(41,'(4i8,4f8.1)',END=59)
& year,month,day,hr,
& di rcombi ned,spdcombi ned,v(1,1),hgtcombi ned
        v(1,2)=v(1,1)

    enddo

    kk=0    !edit the tail of the high visby period
    do i=aint(real(l/2)),aint(real(l/2))+4
    if(v(100-i,1).ne.99999)kk=(16000-v(100-i,1))+kk

    enddo
    roc=real(kk)/5

    do ii=aint(real(l/2)),1,-1
    v(100-ii+1,2)=v(100-ii,2)+roc
    if(v(100-ii+1,2).gt.37040)v(100-ii+1,2)=37040
    enddo

    kk=0    !edit the head of the high visby period
    do i=aint(real(l/2)),aint(real(l/2))+4
    if(v(100+i,1).ne.99999)kk=(16000-v(100+i,1))+kk

    enddo
    roc=real(kk)/5

    do ii=aint(real(l/2)),1,-1
    v(100+ii-1,2)=v(100+ii,2)+roc
    if(v(100+ii-1,2).gt.37040)v(100+ii-1,2)=37040
    enddo

    do ii=1,aint(real(l/2))!shift the array forward to the end of the period
        do i=199,1,-1
            v(i+1,1)=v(i,1)
            v(i+1,2)=v(i,2)
        enddo
        write(21,'(2f10.1)')v(200,1),v(200,2)
        read(41,'(4i8,4f8.1)',END=59)
& year,month,day,hr,
& di rcombi ned,spdcombi ned,v(1,1),hgtcombi ned
        v(1,2)=v(1,1)

    enddo

    endif !l is greater than 2

    endif ! centering the array

    goto 51
59  continue

    do i=199,2,-1                !write out the end of the file
    write(21,'(2f10.1)')v(i,1),v(i,2)
    enddo

    close(41)
    close(21)

    !combined the two files
    print*, "Combi ning Extrapolated Vi sibi lity Fi les at Si te:", i si te

        if (i si te.lt.10) then
            write(fi lename,'(a21,i1,a4)')
& 'c:\NOAA\vi sdata\WDV_0',i si te,'.txt'

```

```

                                NOAA code. txt
else
    write(filename, ' (a20, i 2, a4)' )
& ' c: \NOAA\vi sdata\WDV_', i si te, '. txt'
endif

OPEN (uni t=21, FI LE=fi lename, STATUS=' ol d', ACTION=' read' )
read (21, ' (a40)' )si tename(i si te)

if (i si te. l t. 10) then
    write(filename, ' (a22, i 1, a4)' )
& ' c: \NOAA\si tedata\WDC_0', i si te, '. txt'
else
    write(filename, ' (a22, i 2, a4)' )
& ' c: \NOAA\si tedata\WDC_', i si te, '. txt'
endif
OPEN (uni t=41, FI LE=fi lename, STATUS=' ol d', ACTION=' read' )
read (41, ' (a40)' )si tename(i si te)

if (i si te. l t. 10) then
& ' c: \NOAA\vi sdata\WDVC_0', i si te, '. txt'
else
& ' c: \NOAA\vi sdata\WDVC_', i si te, '. txt'
endif
OPEN (uni t=31, FI LE=fi lename, STATUS=' repl ace', ACTION=' wri te' )
wri te (31, ' (a40)' )si tename(i si te)

61 read(21, ' (2f10. 1)', END=69)v(1, 1), v(1, 2)
read(41, ' (4i 8, 4f8. 1)', END=69)
& year, month, day, hr,
& di rcombi ned, spdcombi ned, vi sbycombi ned, hgtcombi ned
wri te(31, ' (4i 8, 5f8. 1)' )
& year, month, day, hr,
& di rcombi ned, spdcombi ned, v(1, 1), v(1, 2), hgtcombi ned

69 goto 61
cont i nue

cl ose(41)
cl ose(31)
cl ose(21)

enddo !i si te

endi f !doi t

!cal cul ate vi sby day met rics and wri te to a fi le

doi t=0
if(doi t. eq. 1)then

& OPEN (uni t=21, FI LE=' c: \NOAA\Vi si bi l i ty. txt'
, STATUS=' repl ace', ACTION=' wri te' )

do i si te=1, 18

wri te(21, ' (i 4, a50)' )i si te, si tename(i si te)

if (i si te. l t. 10) then
& ' c: \NOAA\vi sdata\WDVC_0', i si te, '. txt'
else
& ' c: \NOAA\vi sdata\WDVC_', i si te, '. txt'
endif
OPEN (uni t=41, FI LE=fi lename, STATUS=' ol d', ACTION=' read' )
read (41, ' (a40)' )si tename(i si te)

do l =18520, 37040, 9260
rewi nd(41)
read (41, ' (a40)' )si tename(i si te)
wri te(21, ' (f8. 2, a3)' )real (l)/1852, ' NM'
pri nt*, "Cal cul at i ng Vi si bi l i ty Days at Si te: ", i si te, real (l)/1852

71 if(day. ne. dayck) then
if (real (hourssunny)/13. gt. 0. 5)days50=days50+1
if (real (hourssunny)/13. gt. 0. 75)days75=days75+1

```



```

NOAA code. txt
i f (real (hourssunny)/13. gt. 0. 9)days90=days90+1
i f (real (hourscl ear)/24. gt. 0. 5)thpcl r50=thpcl r50+1
i f (real (hourscl ear)/24. gt. 0. 75)thpcl r75=thpcl r75+1
i f (real (hourscl ear)/24. gt. 0. 9)thpcl r90=thpcl r90+1
i f (real (ni ghthrsl ear)/11. gt. 0. 5)ni ghtscl r50=ni ghtscl r50+1
i f (real (ni ghthrsl ear)/11. gt. 0. 75)ni ghtscl r75=ni ghtscl r75+1
i f (real (ni ghthrsl ear)/11. gt. 0. 9)ni ghtscl r90=ni ghtscl r90+1
total days=total days+1

hourssunny=0
hourscl ear=0
ni ghthrsl ear=0
dayck=day

endi f

read(41, ' (4i 8, 5f8. 1)' , END=79)
& year, month, day, hr,
& di rcombi ned, spdcombi ned, vi sbycombi ned, vi sby2, hgtcombi ned

i f(vi sby2. ge. l ) then
hourscl ear=hourscl ear+1
i f(hr. ge. 6. and. hr. l t. 19. and. vi sby2. ge. l ) then
hourssunny=hourssunny+1
endi f
endi f
ni ghthrsl ear=hourscl ear-hourssunny

goto 71
conti nue

wri te(21, ' (a20, 4i 8, 3F10. 2)' )"DAYS",
&days50, days75, days90, total days,
&real (days50)/real (total days), real (days75)/real (total days),
& real (days90)/real (total days)
wri te(21, ' (a20, 4i 8, 3F10. 2)' )"NI GHTS",
&ni ghtscl r50, ni ghtscl r75, ni ghtscl r90, total days,
&real (ni ghtscl r50)/real (total days),
& real (ni ghtscl r75)/real (total days),
& real (ni ghtscl r90)/real (total days)
wri te(21, ' (a20, 4i 8, 3F10. 2)' )"24-HOUR PERI OD",
&THPcl r50, THPcl r75, THPcl r90, total days,
&real (THPcl r50)/real (total days), real (THPcl r75)/real (total days),
& real (THPcl r90)/real (total days)

total days=0
days50=0
days75=0
days90=0
THPcl r50=0
THPcl r75=0
THPcl r90=0
ni ghtscl r50=0
ni ghtscl r75=0
ni ghtscl r90=0

enddo !di stance
enddo !i si te

cl ose(41)
cl ose(21)

endi f !doi t

!calculate visby day metrics for each seasonand write to a file

doi t=1
i f(doi t. eq. 1)then

do s=1, 4

wri te(fi lename, ' (a18, i 1, a4)' )' c: \NOAA\Vi si bi l i ty' , s, ' . txt'
OPEN (uni t=21, FI LE=fi lename
& , STATUS=' repl ace' , ACTION=' wri te' )

do i si te=1, 18

wri te(21, ' (i 4, a50)' )i si te, si tename(i si te)

```

```

                                NOAA code. txt
      if (i site. l t. 10) then
        write(fi lename, ' (a22, i 1, a4)' )
&      ' c: \NOAA\vi sdata\WDVC_0', i site, ' . txt'
      else
        write(fi lename, ' (a21, i 2, a4)' )
&      ' c: \NOAA\vi sdata\WDVC_', i site, ' . txt'
      endi f
      OPEN (uni t=41, FI LE=fi lename, STATUS=' ol d', ACTION=' read' )
      read (41, ' (a40)' )si tename(i site)

do I=18520, 37040, 9260
rewi nd(41)
read (41, ' (a40)' )si tename(i site)
wri te(21, ' (f8. 2, a3)' )real (I)/1852, ' NM'
pri nt*, "Cal cul ating Vi si bi l i ty at Si te: ", i site, real (I)/1852, s

81  if(day. ne. dayck. and. season. eq. s) then
    if (real (hourssunny)/13. gt. 0. 5)days50=days50+1
    if (real (hourssunny)/13. gt. 0. 75)days75=days75+1
    if (real (hourssunny)/13. gt. 0. 9)days90=days90+1
    if (real (hoursclear)/24. gt. 0. 5)thpclr50=thpclr50+1
    if (real (hoursclear)/24. gt. 0. 75)thpclr75=thpclr75+1
    if (real (hoursclear)/24. gt. 0. 9)thpclr90=thpclr90+1
    if (real (ni ghtsrsclear)/11. gt. 0. 5)ni ghtsr50=ni ghtsr50+1
    if (real (ni ghtsrsclear)/11. gt. 0. 75)ni ghtsr75=ni ghtsr75+1
    if (real (ni ghtsrsclear)/11. gt. 0. 9)ni ghtsr90=ni ghtsr90+1
    total days=total days+1

    hourssunny=0
    hoursclear=0
    ni ghtsrsclear=0
    dayck=day

    endi f

    read(41, ' (4i 8, 5f8. 1)' , END=89)
& year, month, day, hr,
& di rcombi ned, spdcombi ned, vi sbycombi ned, vi sby2, hgtcombi ned

    cal l getseason(month, day, season)

    if(s. eq. season) then
    if(vi sby2. ge. l) then
    hoursclear=hoursclear+1
    if(hr. ge. 6. and. hr. l t. 19. and. vi sby2. ge. l) then
    hourssunny=hourssunny+1
    endi f
    endi f
    ni ghtsrsclear=hoursclear-hourssunny
    endi f

    goto 81
89  conti nue

    wri te(21, ' (a20, 4i 8, 3F10. 2)' )"DAYS          ",
&days50, days75, days90, total days,
&real (days50)/real (total days), real (days75)/real (total days),
& real (days90)/real (total days)
    wri te(21, ' (a20, 4i 8, 3F10. 2)' )"NI GHTS          ",
&ni ghtsr50, ni ghtsr75, ni ghtsr90, total days,
&real (ni ghtsr50)/real (total days),
& real (ni ghtsr75)/real (total days),
& real (ni ghtsr90)/real (total days)
    wri te(21, ' (a20, 4i 8, 3F10. 2)' )"24-HOUR PERI OD          ",
&THPclr50, THPclr75, THPclr90, total days,
&real (THPclr50)/real (total days), real (THPclr75)/real (total days),
& real (THPclr90)/real (total days)

    total days=0
    days50=0
    days75=0
    days90=0
    THPclr50=0
    THPclr75=0
    THPclr90=0
    ni ghtsr50=0
    ni ghtsr75=0
    ni ghtsr90=0

```

NOAA code.txt

```
enddo !di stance  
enddo !i site
```

```
close(41)  
close(21)
```

```
enddo !season  
endif !doi t
```

```
STOP  
END
```

```
subroutine getseason(month, day, season)
```

```
implicit none  
integer month, day, season
```

```
if(month.eq.1)season=1  
if(month.eq.2)season=1  
if(month.eq.3)season=1  
if(month.eq.3.and.day.gt.21)season=2  
if(month.eq.4)season=2  
if(month.eq.5)season=2  
if(month.eq.6)season=2  
if(month.eq.6.and.day.gt.21)season=3  
if(month.eq.7)season=3  
if(month.eq.8)season=3  
if(month.eq.9)season=3  
if(month.eq.9.and.day.gt.21)season=4  
if(month.eq.10)season=4  
if(month.eq.11)season=4  
if(month.eq.12)season=4  
if(month.eq.12.and.day.gt.21)season=1
```

```
return  
end subroutine
```