RECREATIONAL USE ASSESSMENT REPORT – SEASIDE OF VIRGINIA'S EASTERN SHORE

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Eastern Shore of Virginia Seaside Recreational Use Assessment Report

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EXECUTIVE SUMMARY

The Eastern Shore of Virginia's Seaside provides a wide variety of unique opportunities for recreational enthusiasts to enjoy the unspoiled environments and rich natural resources of the tidal creeks, coastal lagoons, tidal salt marshes, and barrier islands as well as access to the Atlantic Ocean. Recreational activities have a rich history of being an anchor economy for the region. Recreational users share the Seaside with a multitude of other commercial, industrial, conservational, and educational users and it is therefore important to understand where recreational uses occur in order to be able to reduce conflicts with other use types and ensure there are adequate access points to allow for public recreation.

The Accomack-Northampton Planning District Commission (A-NPDC) has developed a baseline dataset for defining where recreational uses occur on the Seaside of Virginia's Eastern Shore. Recreational uses were assessed by using several different techniques including identifying existing data sources, soliciting observations and accounts of where recreational uses occur through a participatory mapping project, and performing a series of aerial surveys to directly observe where recreational uses occur during times of peak use.

The study identified a very limited amount of historic data for recreational use on the Seaside; however, the information that was identified strongly supported the findings of the participatory workshop and the aerial surveys. The participatory GIS workshop produced a series of 22 stakeholder-approved maps illustrating which areas are considered the most intensively-used areas on the Seaside. Fourteen aerial surveys of the Seaside during peak times of recreational use resulted in over 2,000 photographs of 10 different recreational-use types.

Correlation of the 3 different datasets, resulted in a comprehensive spatial understanding of where, when, and which recreational-use types were occurring on the Seaside. Most recreational uses occur within the barrier island system and there were relatively fewer that occurred in the offshore areas. The most-intensely used area was Assateague Island, which is was reported and observed as being the most popular place for shore use, swimming, shore fishing, and surface water sports. The next most popular areas for various recreational uses are the tidal inlets, barrier islands, and navigable channels. Three ports, Chincoteague, Wachapreague, and Oyster predominantly provide the majority of access to the offshore ocean for various recreational uses. Recreational use is weather-dependent for most uses and there are many use-types which coincide with seasonal changes in availability of migratory wildlife and aquatic life.

The resolution and comprehensive nature of the data and information produced by this study, if used in future marine spatial planning efforts has the potential to reduce marine-use conflicts and ensure that the most intensive and important recreational areas be preserved for public use for the foreseeable future.

1.0 INTRODUCTION

The Seaside of the Eastern Shore of Virginia has historically attracted people to its pristine and navigable natural environments to recreate. During the 19th century into the mid-20th century, the area's recreational uses were predominantly centered on recreational fishing and hunting. During these times, fishing and hunting were as much necessity as they were recreational. While some local residents fished and hunted for necessity, there was also a substantial for-hire industry with extremely popular hunting lodges on the barrier islands that were often frequented by presidents. As times changed in more recent years with the advent and increasing popularity of motor boats and with the establishment of roads to the beach at Assateague Island, recreational use trends have shifted from being predominantly fishing and hunting to shore use, fishing, and motor boating. Additionally, people are continuing to find new ways to enjoy the seaside as relatively new uses such as kayaking and various water sports are gaining in popularity. Finally, the Eastern Shore of Virginia's rural character and unique pristine seaside environments are attracting more and more people who desire to recreate in such a unique setting.

The Seaside Special Area Management Planning (SAMP) team and the Mid-Atlantic Regional Council on the Ocean (MARCO) have been investigating ways to better implement marine spatial planning on the Seaside and Mid-Atlantic Ocean off Virginia by assessing the wide array of uses in inshore and offshore areas. These efforts have identified the need to attain recreational-use data to provide for appropriate marine spatial planning and in turn,

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reduce marine-use conflicts, maximize use-efficiency, and enhance environmental and economic productivity.

As result, the Accomack-Northampton Planning District Commission (A-NPDC) conducted an assessment of recreational uses on the inshore and offshore areas of the Seaside of Virginia's Eastern Shore and adjacent ocean to produce a baseline dataset for use by the Seaside SAMP team and MARCO. The assessment utilized three different surveying techniques including analyzing and compiling existing recreational-use data, solicitation of key stakeholder information via a participatory Geographical Information Systems (GIS) workshop, and aerial surveying during expected times of peak recreational use. Each technique provided detailed comprehensive information illustrating locations experiencing the greatest use for each of a variety of recreational uses.

Throughout the process, the A-NPDC worked closely with partnering agencies including the National Ocean and Atmospheric Administration Coastal Services Center (NOAA CSC), the Virginia Coastal Zone Management (VCZM) Program, and MARCO to determine recreational-use assessment categories and to develop assessment methodologies that will serve as the standard approach for other regions and states on the Mid-Atlantic coastline. The project's outcomes greatly enhanced understanding of the spatial extent of recreational uses in inshore and offshore Seaside environments, which in turn is expected to lead to improved marine spatial planning decisions, enhanced environmental and economic productivity, and reduction in marine-use conflicts.

1.0 INTRODUCTION

1.1 Project Boundaries & Setting

The project area discussed in this report covers the entire Seaside of Virginia's Eastern Shore. This includes an approximately 75-mile long stretch of coastline bound, the mainland of the Eastern Shore to the west, the state border with Maryland to the north, and the mouth of the Chesapeake Bay to the south. Specifically, the western boundary includes the tidal portion of the creeks on the mainland and the southern boundary was established as an east-west line crossing the third island from the south of the Chesapeake Bay Bridge Tunnel on the south side of the Baltimore Channel tunnel. The Seaside includes the longest expanse of coastal wilderness remaining on the Atlantic seaboard and is comprised of thousands of acres of pristine salt marshes, vast tidal mudflats, shallow lagoons, and navigable tidal channels that support thriving seafood and recreational tourism industries. These environments are bound by a barrier island chain to the east that is largely undeveloped. In addition, several Seaside towns and villages serve as ports for charter fishing activities in the offshore waters of the Mid-Atlantic coastal margin. The eastern boundary of the project area is the 200 nautical mile offshore exclusive economic zone boundary. See **Figure 1** for a map of the project area.

The participatory GIS workshop and aerial surveys were conducted for the entire Atlantic Coast of Virginia and while this report only details the Eastern Shore portion, data and discussion of the southern portions are covered in a separate report through VCZM FY2012, Task 95.01. The data for all of Virginia's Atlantic Coast can also be viewed on VCZM's online data portal, the Virginia Coastal Geospatial and Educational Mapping System (Coastal GEMS) at www.coastalgems.org.

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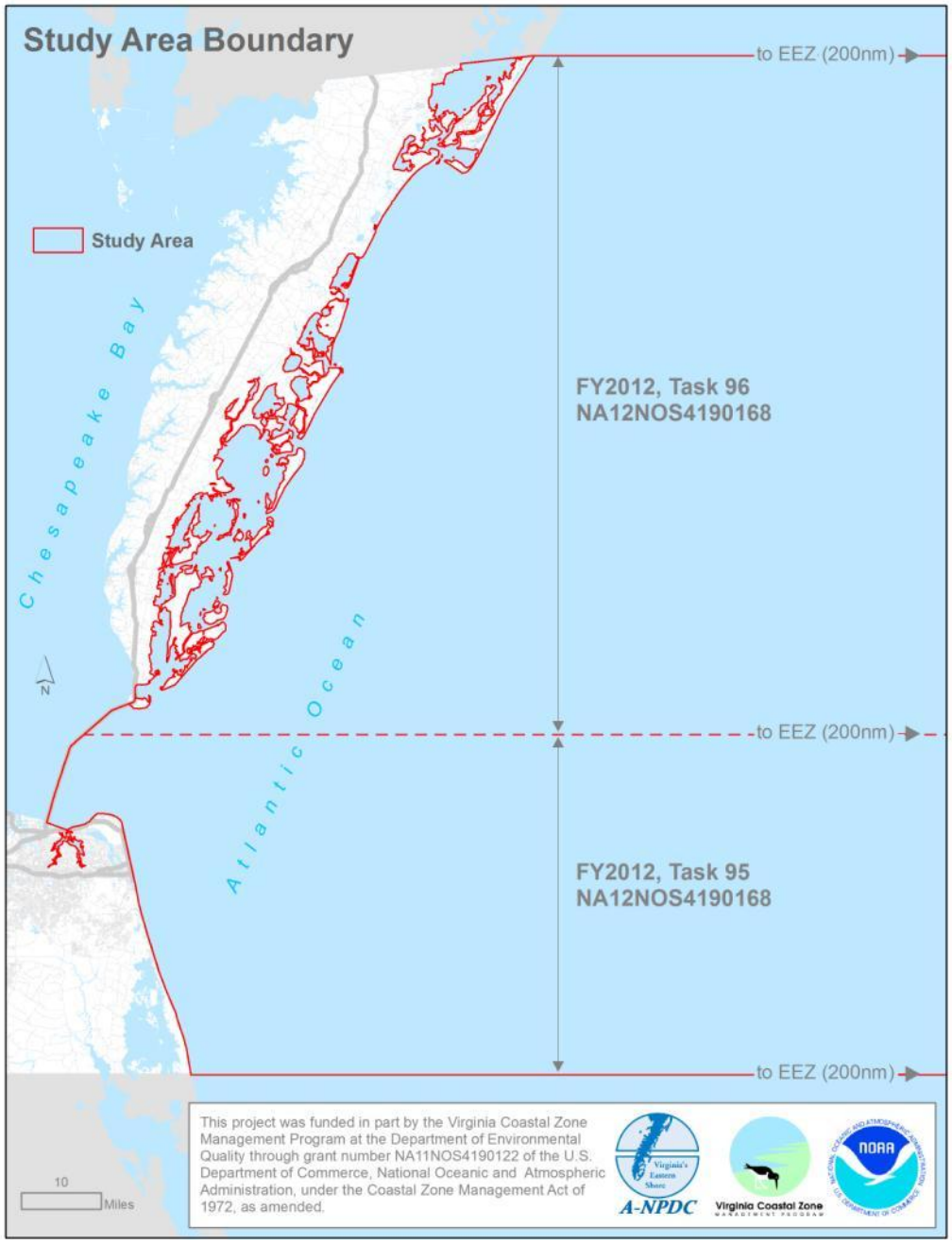


Figure 1 – Map illustrating the study area boundary for the recreational use assessment. While the workshop and aerial surveys produced information for the entire Virginia Atlantic Coast, this report only addresses data for the Eastern Shore portion under a VCZM FY2012, Task 95 Grant Number NA12NOS4190168.

2.0 METHODS

2.1 Literature and Data Search

A-NPDC staff performed a comprehensive search for historical recreational data. Desired data included counts of observations of recreational uses and GIS data mapping recreational uses. The search was conducted by interviewing various agencies and stakeholder groups affiliated with the seaside on Virginia's Eastern Shore and performing literature searches.

Agencies and stakeholders contacted for interviews included:

- Assateague Coastkeeper;
- Counties of Accomack & Northampton;
- Eastern Shore of Virginia Tourism Commission;
- The Nature Conservancy;
- Towns of Chincoteague & Wachapreague;
- U.S. Fish & Wildlife Service;
    - Chincoteague & Eastern Shore of Virginia National Wildlife Refuges
- Virginia Department of Conservation and Recreation;
- Virginia Department of Environmental Quality;
- Virginia Department of Game and Inland Fisheries;
- Virginia Department of Transportation;
- Virginia Eastern Shorekeeper;
- Virginia Institute of Marine Sciences; and
- Virginia Marine Resources Commission.

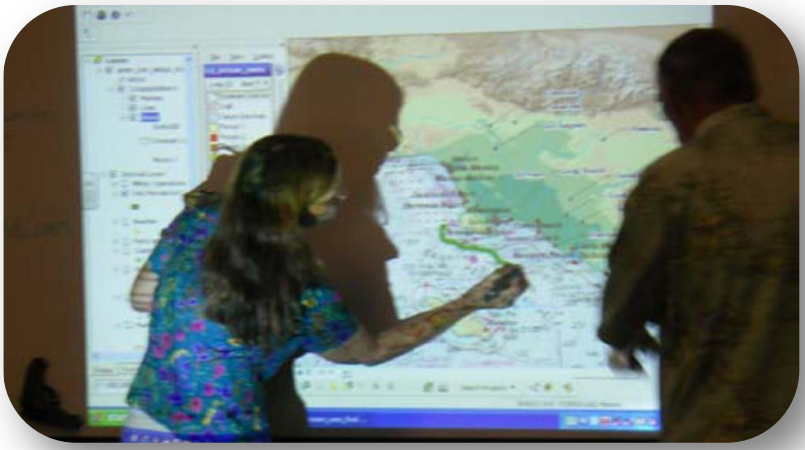
Literature searches were performed at the Eastern Shore Public Library and on the internet.

Once relevant recreational data was identified, A-NPDC staff filtered the data to include data that was pertinent for the current study. The data is described in detail in **Section 3.1**.

2.0 METHODS

2.2 Participatory GIS Workshop

In order to know how, when and where recreational uses occur on the seaside of Virginia's Eastern Shore, it was determined that a participatory mapping approach would be the most effective way to better understand which areas are important recreational areas. The participatory GIS approach was determined to be ideal for recreational uses to be easily mapped and basic data to be added to an online portal which can be readily accessed for the use of stakeholders and the general public.



A-NPDC coordinated and hosted the 2-day workshop with assistance from VCZM, NOAA CSC, and MARCO partners on July 11 & 12, 2012 at the Eastern Shore Community College in Melfa, Virginia. Prior to the workshop, the NOAA CSC held a participatory GIS facilitation training for the project planning team. Participants were instructed on the process and utilized computers and e-beam technology to map where recreational uses occur. This being the first time that a participatory GIS workshop of this kind was conducted in Virginia, there the project team employed a flexible facilitation and coordination approach to the workshop that allowed for various refinements to the process as the workshop progressed.

The workshop outcomes were intended to support the VCZM Program's effort to develop a baseline dataset for recreational uses for Virginia's entire Atlantic Coast. As a member of MARCO, Virginia, through VCZM is collecting

information on how the public uses the Atlantic coast of Virginia. These baseline data will inform planning efforts being undertaken by VCZM to help develop a Virginia Ocean Plan and to help VCZM and A-NPDC to develop the Seaside Special Area Management Plan. Collecting data on the variety of ways the Seaside Bays and Atlantic Ocean are used for recreation is anticipated to reduce use conflicts in coastal waters, maximizing efficiency, and enhancing environmental and economic productivity.

While the workshop captured information for the entire Virginia Atlantic Coast, only the information for the project area described in **Figure 1** are presented and discussed in this report. The areas south of the areas discussed in this report are covered under VCZM FY2012, Task 95, NA12NOS4190168 and all maps resulting from the workshop are available for viewing in greater detail on VCZM's online data portal, Coastal GEMS (www.coastalgems.org).

The project planning team, consisting of the A-NPDC, VCZM, NOAA CSC, and MARCO state representatives, developed the methods described in the following sections.

2.2.1 Stakeholder Identification & Participation

Identifying stakeholders with the most comprehensive knowledge and experiences was one of the most critical facets of the participatory GIS workshop planning effort. The project planning team leveraged its combined knowledge of local and regional personnel to engage a very diverse and broad reaching group of stakeholders. Invitations were extended to stakeholders who were known to have an extensive history of observing recreational uses within the field area. Special consideration was given to ensure that stakeholders for each of the 22 uses were well represented.

Invitations to the workshop were extended to over 110 stakeholders representing the following sectors:

- Federal Agencies (National Park Service employees and lifeguards, U.S. Fish and Wildlife Service, NASA, NOAA);
- State Agencies (VA Department of Game and Inland Fisheries, VMRC, VA Department of Environmental Quality, VA Department of Conservation and Recreation);
- Local Governments (Accomack and Northampton Counties and Seaside Towns)

- Defense Agencies (U.S. Coast Guard, U.S. Navy);
- Law Enforcement Agencies (VA Marine Police division of VMRC, VA Department of Game and Inland Fisheries Conservation Police Officers);
- Scientists and Researchers (VA Institute of Marine Science, University of VA, Marine Science Consortium);
- Non-Governmental Organizations (The Nature Conservancy, Virginia Eastern Shorekeeper, Assateague Coastkeeper, Eastern Shore Anglers Club, Surfrider Foundation, VA Aquarium);
- Harbor Masters and Marine Business Operators;
- Local Watermen (Aquaculture, Wild Harvesters, Commercial Fishermen, Charter Fishing Captains);
- Ecotourism Guides; and
- Knowledgeable Citizens.

In all, 44 stakeholders participated in the mapping process with 29 stakeholders participating on the first day of the workshop and 14 stakeholders participating on the second day. A comprehensive representation for the various sectors listed above and for the different uses was achieved. The workshop invitation flyer and sign-in sheets are included in **Appendix A**.

2.2.1 Participatory GIS Process

The participatory GIS process implemented during the current study was developed with the guidance of the NOAA CSC who had utilized the process in planning workshops nationwide. Participants were directed to draw on digital maps projected onto a wall using a stylus that emits signals to an adjacent reader which immediately adds the shape they draw to the map. This innovative method quickly and efficiently allows users to share their

thoughts, compare notes and learn from others in the group.

On July 10, 2012, the day prior to the workshop, the NOAA CSC conducted a participatory GIS orientation and staff training for members of the project team, which consisted of staff from the A-NPDC, VCZM, and MARCO state representatives from Maryland, Delaware, and New Jersey. The training was intended to provide a demonstration of the technology and mapping exercise and train staff on how to perform the various necessary roles during the mapping process.

Participants were invited to attend one of the two workshop dates and upon arrival to the workshop on their respective day, they were assigned to a breakout group based off their background knowledge and experience. The project team chose the participants for each group in a manner that provided the broadest range of backgrounds and experience levels were equally represented in each group. Each day three to four breakout groups were established with each group consisting of between six and nine participants. Following a morning introductory presentation that involved all participants, the breakout groups retreated to separate rooms where they remained with their group for the remainder of the workshop.

Each breakout group was led by three to five members of the project team who served various roles based on their expertise including group facilitator, GIS specialist, and note-taker. The facilitator facilitated the mapping process and led the group discussions. The GIS specialist coordinated all technology and assisted participants with technical aspects of the mapping process. The other members of the project team served as note-takers who captured details on group discussions and developments. One member of the project team served the role of “Runner”, who coordinated efforts between each breakout group to ensure that each group was mapping uses using the same parameters. During the

morning of the first workshop day, NOAA CSC staff served as facilitator and GIS specialist so the staff from the A-NPDC, VCZM, and MARCO states could observe the process prior to taking the lead during subsequent sessions. Each use type was mapped throughout the entire day, one use at a time.

The facilitator started the mapping process for each breakout group by defining the specific use to be mapped and what it includes and excludes. Participants were first instructed to draw polygons that represented footprints of general use and then, once complete, repeat the process for footprints of dominant use. The general and dominant-use footprints are described in detail in **Figure 2**.

Use Area Footprint Type	Purpose	Definition	Mapping Technique
General	To map the maximum footprint over which each use occurs.	Includes all areas in which the use is known to occur with some regularity, regardless of its frequency or intensity. This does not include areas where the use may have occurred once or twice or where it might conceivably occur now or in the future.	All input is captured and reflected in the final maps.
Dominant	To map those areas where the use most often occurs.	Includes all areas routinely used by most users most of the time. Examples could include: popular swimming beaches, regular fishing areas for charter boats, hot spots for whale watching, consistently good surfing beaches, etc.	Participants are asked to draw dominant use areas after reviewing the drafted general use footprints. Participants then suggest areas to be discussed by the group. The final product represents only those areas (polygons) agreed upon by the breakout group, Areas of disagreement are captured in the notes but not presented as the group product.

Figure 2 – Table explaining the general and dominant use footprint types.

2.0 METHODS

Group discussions during the mapping process would often lead to additional information being provided for uses regarding seasonal and temporal variations and special events. For some uses these details were able to be spatially documented, while for others it was recorded in the notes.

2.2.1.1 Recreational Use Types

A-NPDC and VCZM staff coordinated with staff from the NOAA Coastal Services Center to establish criteria for the mapping project including selection of recreation use types. The recreational use types were organized into three main use groups:

- Boating for Hire (Charter) Uses;
- Recreational Fishing/Hunting Uses; and
- General Recreational Uses (Non-consumptive).

Additionally, historic and culturally-significant areas were also acknowledged by the project team as being very important areas. Participants were asked to identify and describe these areas within the study area to provide information that will assist with efforts to develop strategies for collecting more comprehensive cultural use information in the future.

Finally, during the two-day workshop, the definitions of the use types were refined by adding additional details as participants raised questions and offered new ideas that had yet to be considered during the workshop planning process. Additionally, since use footprints were defined using the relative and non-quantifying terms, “general” and “dominant”, there were often occasions where participants would reach consensus on what these relative terms truly meant. Since the workshop involved multiple breakout groups working concurrently, it was critical that all participants and workshop facilitators were using the same parameters as they evolved. To resolve this issue, one member of the project team was designated as a “runner” whose role was to coordinate and

communicate any changes or additions to the parameters amongst each breakout group. Summaries of notes related to processing or other items for each mapped use are included in **Appendix B**.

Figures 3 through 6 below describe the 22 different recreational and cultural uses included during the participatory GIS workshop, and the various ranges of mapping scales deemed to be appropriate by the project planning team.

Boating for Hire (Charter) Uses

Use Name	Definition	Appropriate Mapping Scale	
		Min	Max
Charter fishing – small vessel	Charter activity related to fishing led by charter vessels of lesser size (e.g. 6-pack boats)	1:250,000	1:500,000
Charter fishing – large vessel	Charter activity related to fishing led by charter vessels of greater size (e.g. head boats)	1:250,000	1:500,000
Charter diving/snorkeling	Charter activity related to recreational dive or snorkel charters	1:100,000	1:250,000
Charter party cruises	Charter activity for cruises	1:250,000	1:500,000
Charter wildlife viewing	Charter activity focused on wildlife viewing	1:250,000	1:500,000
Charter scenic viewing	Charter activity focused on scenic or natural area viewing, photography, historic perspective	1:250,000	1:500,000
Charter transport	Charter activity related to transport services, ferry boats, etc	1:250,000	1:500,000

Figure 3 – Table showing each boating for hire (charter) use type mapped during the participatory GIS workshop.

2.0 METHODS

Recreational Fishing/Hunting Uses

Use Name	Definition	Appropriate Mapping Scale	
		Min	Max
Recreational kayak & non-motorized vessel fishing	Any fishing activities from private non-motorized vessels	1:50,000	1:100,000
Recreational dive fishing	Recreational SCUBA and free-dive fishing	1:25,000	1:50,000
Recreational fishing from motorized vessels	Any fishing activities from private motorized vessels, including tournaments	1:250,000	1:500,000
Recreational shore fishing	Recreational fishing from beaches or piers	1:50,000	1:100,000
Recreational shellfish harvesting	Any take of clams or oysters	1:50,000	1:100,000
Recreational waterfowl hunting	Any take of waterfowl	1:50,000	1:100,000

Figure 4 – Table showing each recreational fishing & hunting use-type mapped during the participatory GIS workshop.

2.0 METHODS

General Recreational Uses – Non-consumptive

Use Name	Definition	Appropriate Mapping Scale	
		Min	Max
Motorized boating	Personal watercraft, outboard motors, private motorized vehicles	1:100,000	1:500,000
Paddling	Kayaking, canoeing, rowing, paddle-boarding, outrigger paddling	1:50,000	1:100,000
Sailing	Sailboats, overnight anchoring, races, regattas	1:250,000	1:500,000
Scuba/snorkeling/diving	Scuba diving, tethered diving, snorkeling, free diving	1:25,000	1:50,000
Shore Use	Barrier island visitation	1:25,000	1:50,000
Surface water sports	Surfing, wind-surfing, kite-surfing	1:25,000	1:50,000
Swimming	Short and long distance surface swimming any distance from shore	1:25,000	1:50,000

Figure 5 – Table showing each general recreational (non-consumptive) use type mapped during the participatory GIS workshop.

Cultural Uses

Use Name	Definition	Appropriate Mapping Scale	
		Min	Max
Historic/cultural	Ocean areas or views with inherent cultural, traditional, archaeological, religious, spiritual, tribal or historic value	1:250,000	1:500,000
Scenic/natural views	Ocean areas or views that provide unique opportunities for photography, historic perspective, visual experience, etc.	1:250,000	1:500,000

Figure 6 – Table showing each cultural use type mapped during the participatory GIS workshop.

2.2.1.2 GIS Data Post-Processing

After the workshop, the GIS data from each breakout group were compiled, reviewed, and processed by NOAA CSC and VCZM staff to create over 100 unique data layers for each of the 22 use types. Notes from the workshop (see **Appendix B**) were reviewed and consulted to identify any observed data inconsistencies or gaps. Several follow-up actions were undertaken including soliciting datasets identified during the workshop and these data were acquired and integrated into the metadata.

Processing of the raw data included clipping all shapes to the study area. Once this was accomplished the data was cleaned and edited to fix obvious drawing errors and small unintended gaps, to replace shapes drawn as placeholders, and to follow all other participant instructions captured in the notes. Next, an analysis fishnet grid of one square nautical mile per grid cell was established. Data for each use type was merged, split into general and dominant use feature classes, and individually joined to the fishnet grid. Finally, a calculation for the number of breakout groups that mapped a use for any given grid cell was done, and threshold data analysis was performed to retain the entire general use footprint but remove the dominant use areas not mapped by a majority (50% or greater) of breakout groups.

2.0 METHODS

The final data layers for each use type represent cumulative averages of use information compiled by each of the five breakout groups. Information from each breakout group was weighted evenly. The project planning team established a set grid size for each use type that was determined to be most appropriate for illustration purposes over which each use occurs.

2.2.1.3 Post-Workshop Map Validation

Once processed, participants were invited and encouraged to review and comment on the accuracy and completeness of the final maps for each mapped use type. Participants were directed to an online portal where the final data and maps could be viewed. Participants were then instructed to complete an evaluation form either indicating their approval, citing inaccuracies and making suggestions for edits to the data, or voicing their disaproval of the maps and scheduling a follow-up appointment with members of the project team.

All evaluations received expressed satisfaction of the data and maps as presented and there were not any suggested edits or expressions of dissaproval.

There beingt no further edits needed, the data and maps were published on the VCZM Coastal GEMS (www.coastalgems.org). The data and maps will also be made available on the MARCO Mid-Atlantic Ocean Data Portal (www.midatlanticocean.org) in the near future, but were not included on the site at the date of this report.

2.0 METHODS

2.3 Aerial Surveys

In order to validate the recreational use maps produced during the participatory GIS workshop, the A-NPDC performed a series of aerial surveys over Virginia's Atlantic Coast during 2012 and 2013 that resulted in direct observations of recreational uses during known times of peak use.

Using geo-referenced digital photography during the flights, information was easily and quickly captured for the types and specific places where people were recreating. The survey photographs and GIS data were then processed to create density maps illustrating observed recreational use patterns during times of peak activity. The aerial survey criteria was developed in a manner that allowed for direct comparison to the maps created during the participatory GIS workshops. Specific details on the aerial survey process are described in the following sections.

2.3.1 Flight Methodology & Schedule

Low-level aerial surveys were conducted from a fixed-wing Cessna 182 aircraft, which is owned and operated by the Virginia Marine Resources Commission (VMRC), to capture recreational uses on the Seaside during times of peak use. The survey team consisted of a VMRC pilot and A-NPDC staff member who was responsible for photography and note-taking. The surveys were conducted following methodology utilized successfully in other similar studies around Florida (Ault et al., 2008 and Gorzelany; 1998, 2005, 2009).

Photographs were acquired using a Canon PowerShot S100 digital camera with georeferencing capability that provided spatial information for the plane was at the time the photograph was taken.

Flights occurred over an established flight path at a constant altitude and speed decided upon by A-NPDC staff and the pilot. Surveys occured within three miles to the east of the barrier islands per VMRC policy and were two to four hours in duration depending on aircraft and pilot availability, weather conditions, times corresponding with peak usage and optimal visual observation conditions. Flights originated from the airport in Melfa,

2.0 METHODS

Virginia and covered the seaside from the Maryland/Virginia border on Assateague Island to the Virginia/North Carolina border. Discussion for this report solely focuses on the Eastern Shore portion from the border with Maryland to the north and third island from the south on the Chesapeake Bay Bridge Tunnel (CBBT). **Figures 7 and 8** illustrate the flight paths of the aerial surveys conducted during 2012 and 2013.

Physical data were recorded on flight data logs including the pre-flight National Weather Service marine forecast, boating and weather conditions, wind speed and direction, air and water temperature, tide phase, and sea surface conditions. The flight data logs are included as **Appendix G.**

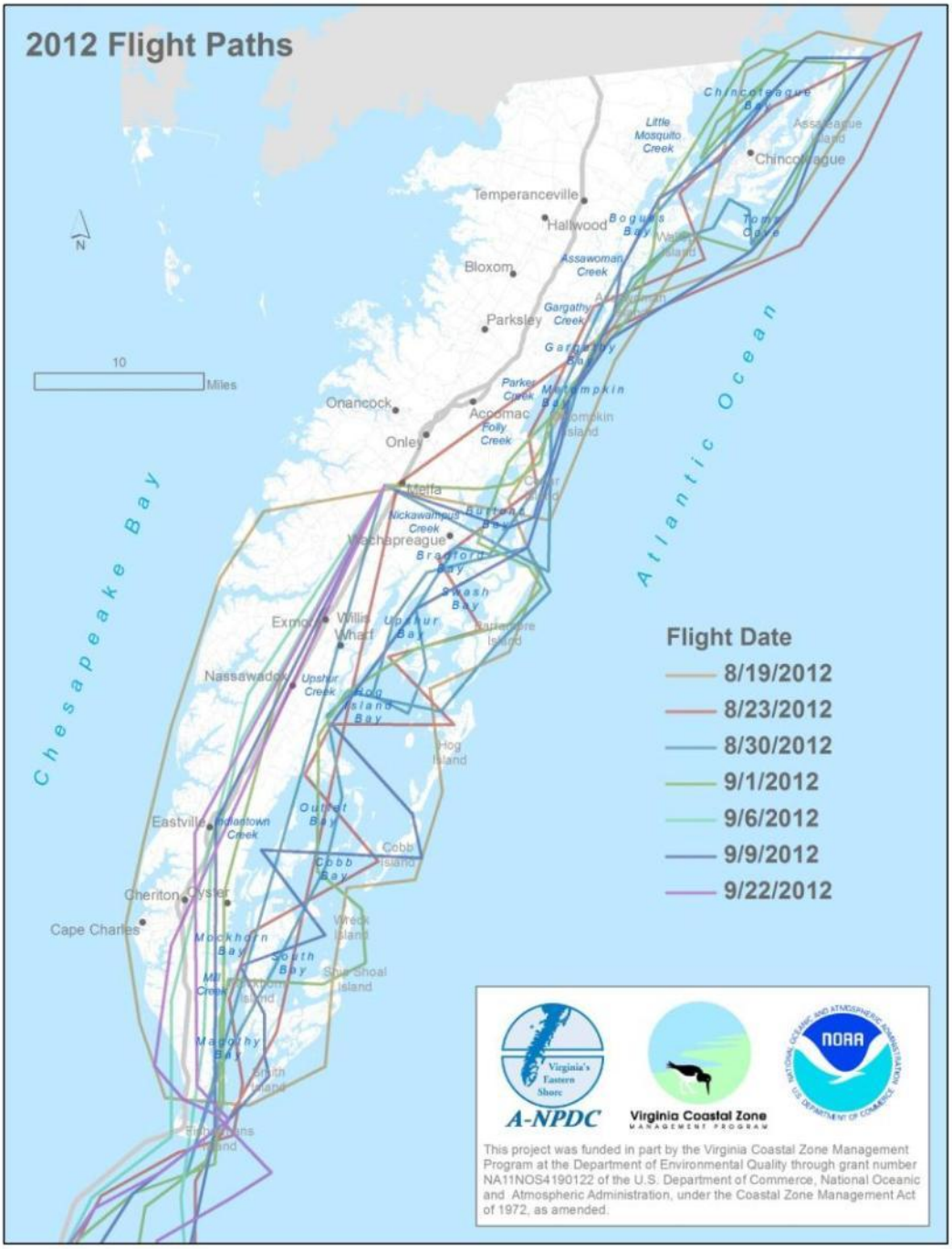
In 2012, eight flights were conducted resulting in 1,064 photographs. Four flights occurred on weekdays and four flights occurred on weekends. These flights occurred on the following dates:

- July 3 (Weekday – Tuesday)
- August 19 (Weekend – Sunday)
- August 23 (Weekday – Thursday)
- August 30 (Weekday – Thursday)
- September 1 (Weekend – Saturday)
- September 6 (Weekday – Thursday)
- September 9 (Weekend – Sunday)
- September 22 (Weekend – Saturday)

In 2013, six flights were conducted resulting in 1,035 photographs. Three flights occurred on weekdays and three flights occurred on weekends. These flights occurred on the following dates:

- July 6 (Weekend – Saturday)
- July 27 (Weekend – Saturday)
- September 5 (Weekday – Thursday)
- September 26 (Weekday – Thursday)
- September 28 (Weekend – Saturday)
- October 3 (Weekday – Thursday)

2.0 METHODS



<u>Figure 7</u> – Map illustrating the flight paths of aerial surveys conducted during 2012.

2.0 METHODS

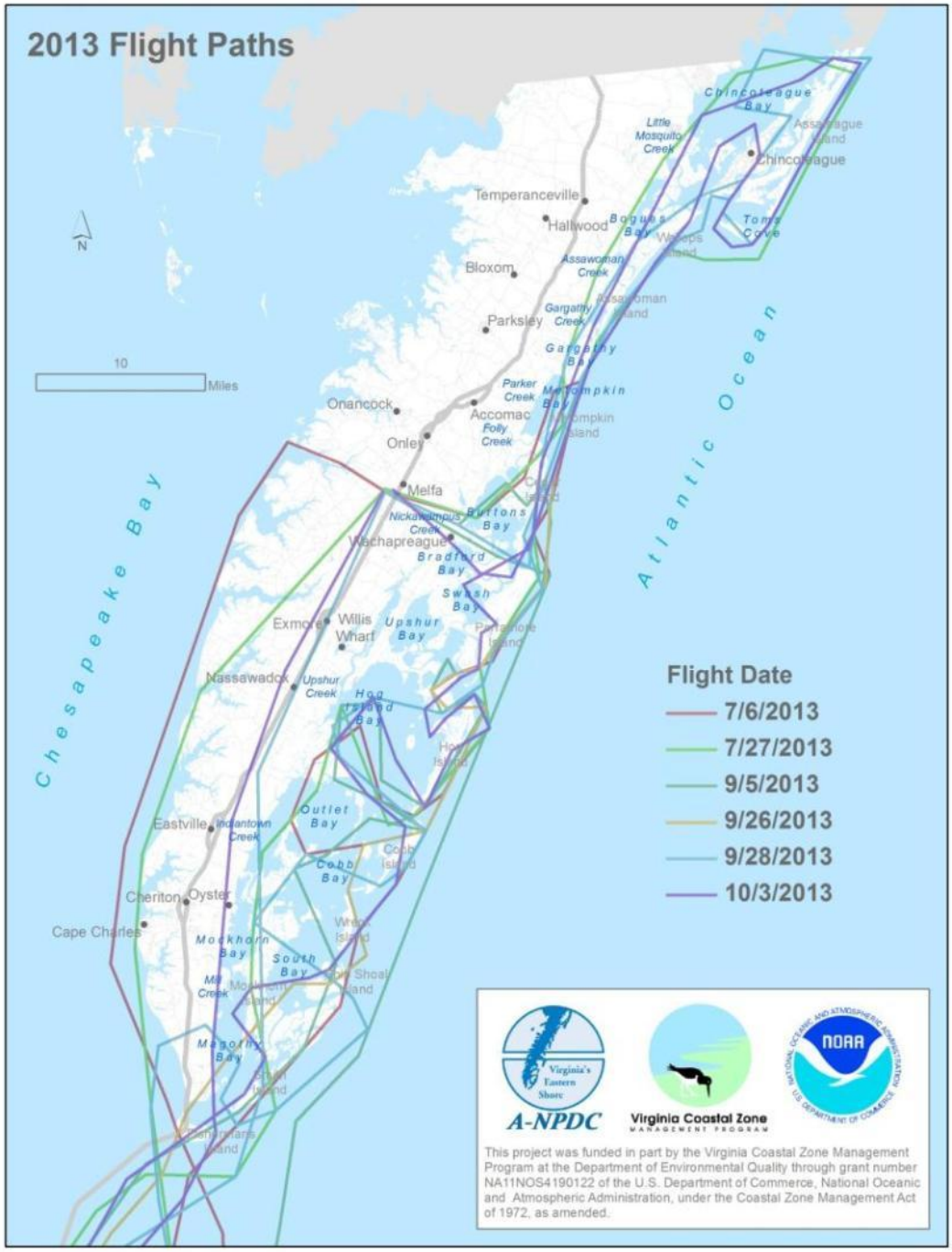


Figure 8 – Map illustrating the flight paths of aerial surveys conducted during 2013.

2.3.2 Photograph & GIS Processing

Following the completion of each aerial survey, digital photographs and the accompanying spatial data were downloaded and incorporated into a GIS database. Once all surveys were completed, each of the 2,099 photographs, 693 of which were within the Eastern Shore survey area, were reviewed and processed into a GIS database and density use maps.

All photographs were georeferenced and captured the latitudinal and longitudinal position of the aircraft at the time the photograph was taken. ArcPhoto was used to upload the spatial data for each photograph into a GIS program where the locations of the photos were used as reference for creating feature class points for each individual recreational use observed. Some issues were experienced with the GPS on certain flights in the vicinity of the NASA-Wallops Flight Facility due to restrictions on GPS signal for security purposes. Additionally, two flight paths had to be altered due to airspace restrictions at the NASA-Wallops Flight Facility. The recreational use photographs where failure of the GPS signal occurred did not prove to be an issue as the knowledge and familiarity of the A-NPDC staff allowed for the locations of each observed use to be properly located in the GIS program.

To allow for comparison with the maps from the participatory GIS workshop, the recreational use type categories used mimicked those used during the workshop. Guidelines and criteria for counting the recreational uses were established prior to each photograph being meticulously reviewed and categorized by use(s) in a Microsoft Excel spreadsheet (see **Appendix F**). The guidelines used for determining the counts of recreational uses were as follows:

- Only recreational uses were counted and distinguishable commercial uses were not counted;
- Any use observed outside of the field survey area was not included;
- Uses captured in multiple photographs were only counted once (i.e. sometimes as many as three photos were taken of the same subject);
- Uses that were clearly recreational and not commercial but the exact recreational use could not be determined due to inadequate photograph resolution were classified as an" Indeterminable Use";
- Vessels that were moored or tied to a dock were not counted;
- Vessels that were beached or anchored at a beach were counted as "Motorized Boating";
- Any vessel from which recreational fishing was observed received a count of "one" regardless of how many people were aboard the vessel;
- People standing or wading in waters greater than knee deep were counted as "Swimming";
- Best estimates were used for beaches with dense crowds where individual users were not easily counted;
- People standing or walking in waters less than knee deep were counted as "Shore Use";
- Distinguishing boating for hire (charter) uses from general recreational uses was not possible; therefore, the uses within the "Boating for Hire (Charter) Uses" category was not used; and
- Any vessels where as few as one fishing rod was visibly vertical and in use were counted as "Recreational Fishing".

Once the spreadsheet was populated with counts for each observed recreational use, the spreadsheet was merged with the GIS metadata. As each point class feature was created in GIS, it received a unique identification number to match it with the merged spreadsheet data. Once completed, counts were compiled for all flights for specific areas and classified using a point feature scale utilizing defined ranges of observations for each use.

3.0 RESULTS & DISCUSSION

3.1 Literature and Data Search

The comprehensive search for historical recreational data did not result in the identification of any existing GIS data, nor were any existing datasets identified through the literature search.

Three datasets were identified that included counts of recreational uses within the project area. All existing data were created since 2006 indicating that the process of gathering data on recreational uses in the area began relatively recently. The three identified datasets are described in detail in the following sections.

2009 Nature Conservancy Recreational Use Counts

In 2009, the Nature Conservancy conducted a count of Red Knot populations on the barrier islands from Assateague Island south to Fishermans Island and including some locations within the coastal lagoons on April 25 and 30; May 14. 21, and 25; and on June 1. Additional recreational use counts were noted during the bird surveys. Recreational uses categories included the number of people on the beach, vehicles on the beach, boats adjacent to the beach, and surf fishermen. The recreational use component of these data is summarized in **Appendix C**.

The recreational data for the number of people on the beach, boats adjacent to the beach, and surf fishermen were within the range of the counts taken during the aerial surveys of the current study considering the period over which the observations were made. Additionally for these three recreational uses, the Nature Conservancy's data identified similar hotspots as the current study, especially for Assateague Island.

It is important to note that these data consider one recreational use type that was not included as a separate classification for the current study, recreational vehicular use on the beach. Extensive recreational vehicular use was observed on Assateague Island with 624 counts. Vehicles were also observed on Wallops, Assawoman, and Hog Islands.

Vehicular use accounted for 26% of all recreational use counts. For the current study, vehicular use was classified as "shore use" and was not assessed by itself.

2006 Virginia Eastern Shorekeeper Recreational Use Counts

In 2006, the Virginia Eastern Shorekeeper produced "*Patrol Summary -Observations and Reports of Human Activity on the Atlantic Barrier Islands on the Eastern Shore of Virginia*," with funding from VCZM and NOAA. The study included random patrols from Gargathy Inlet south to Fishermans Island. Six patrols were conducted during the cold weather months (December-March) and 35 were conducted during the remainder of the year. Most patrols were conducted during Fridays and Saturdays than the remainder of the week. Most reported counts are anecdotal but numerical counts for cottages provided. The recreational use data is summarized in **Appendix D**

The data does offer insight into where these uses are occurring and this information is in general agreement with the findings of the current study.

2012 U.S. Fish & Wildlife Service Recreational & Commercial Use Counts

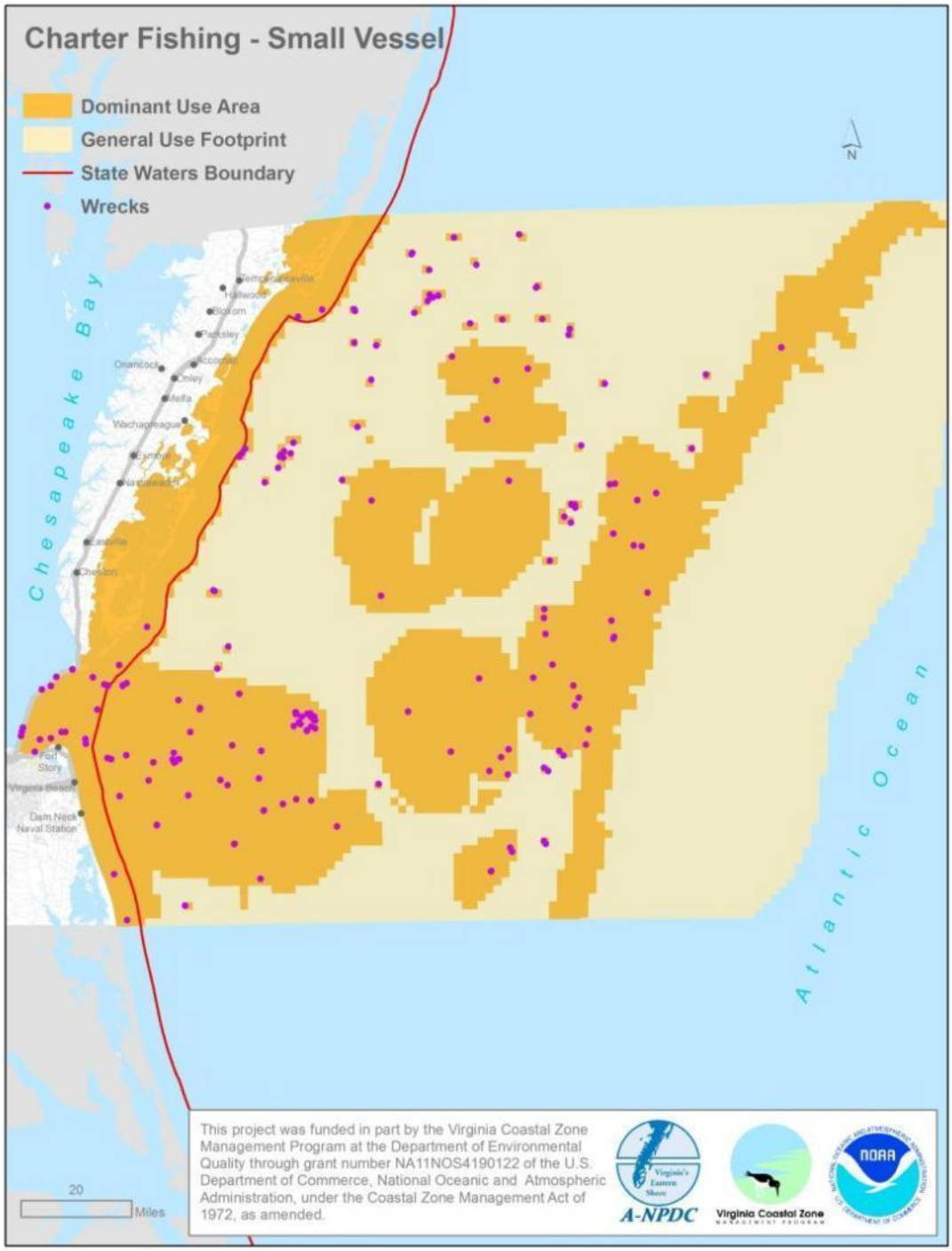
For several months in 2012, the U.S. Fish and Wildlife Service staff at the Eastern Shore of Virginia National Wildlife Refuge compiled recreational use data, which included both motorized and non-motorized boating, at the Wise Point boat ramp at the refuge in southern Northampton County. The recreational use and commercial data are summarized in **Appendix E**.

The current study does identify the Wise Point boat ramp as a critical access point for the seaside on the southern portion of the Eastern Shore. Since the recreational use counts do not distinguish between individual use types, further correlation with the current study is not possible.

3.2 Participatory GIS Workshop

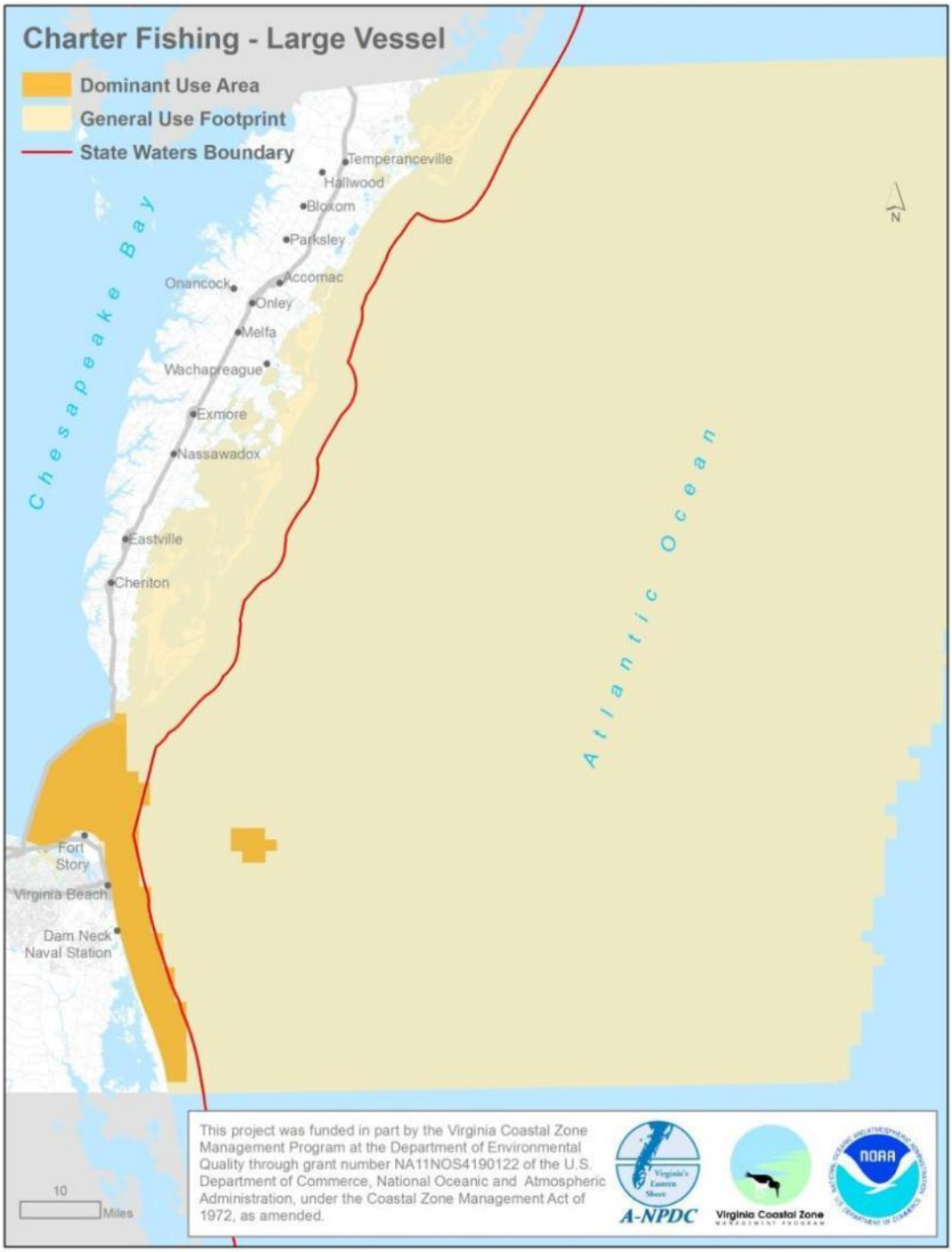
As described in **Section 2.2**, the Participatory GIS Workshop solicited information from a variety of key stakeholders to produce a series of maps that illustrate where recreational use generally and predominantly occurs for 22 different recreational and cultural uses. The Participatory GIS Workshop maps are included as **Figures 9 through 36**. The maps have been validated by those who participated and additional stakeholders unable to attend. While the workshop covered the entire Virginia Atlantic Coast, the discussion below only addresses the Seaside of the Eastern Shore illustrated in **Figure 1**.

3.0 RESULTS & DISCUSSION



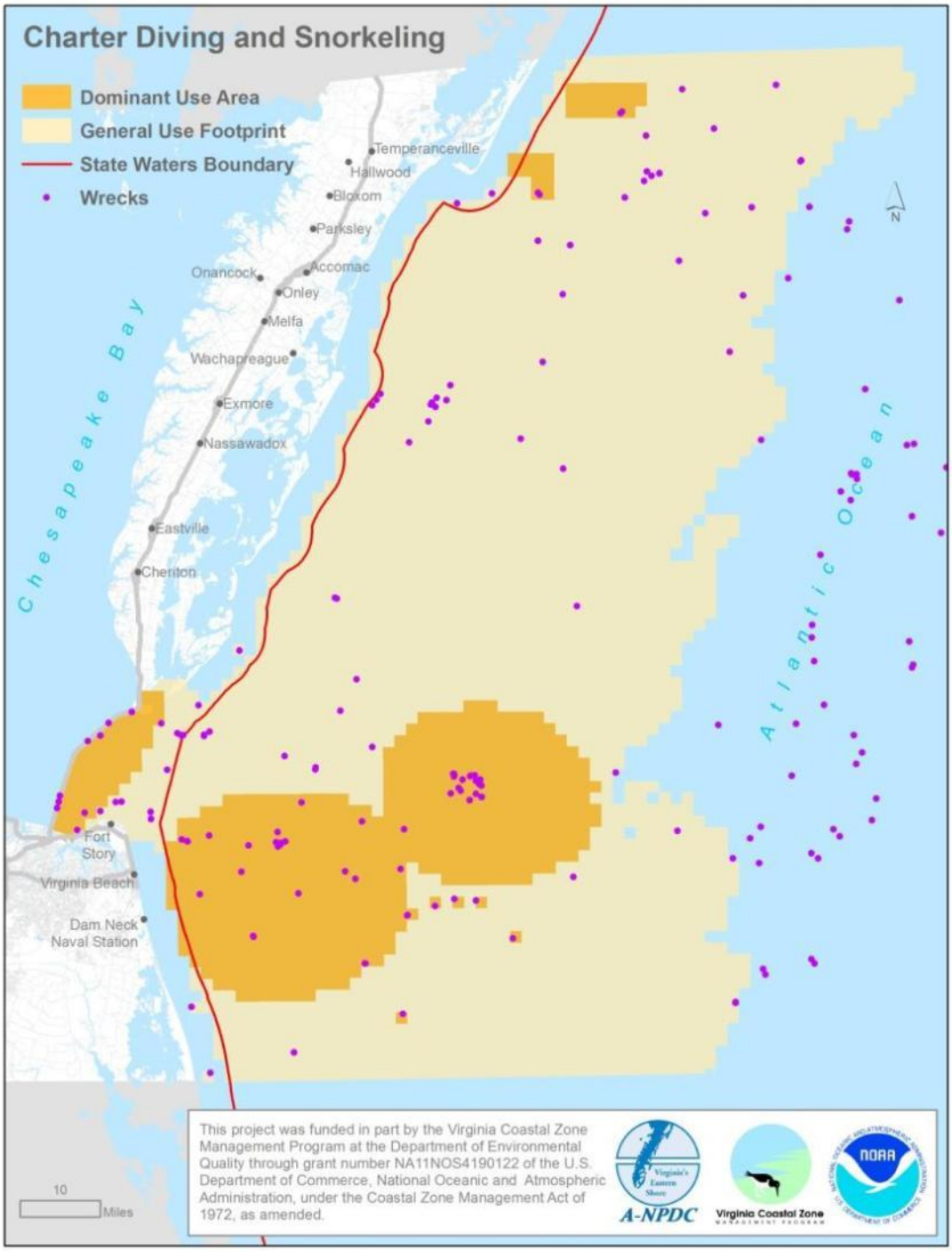
<u>Figure 9</u> – Map illustrating Charter Fishing – Small Vessel general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 10</u> – Map illustrating Charter Fishing – Large Vessel general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 11</u> – Map illustrating Charter Diving & Snorkeling general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

Figure 12 – Map illustrating Charter Party Cruises general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

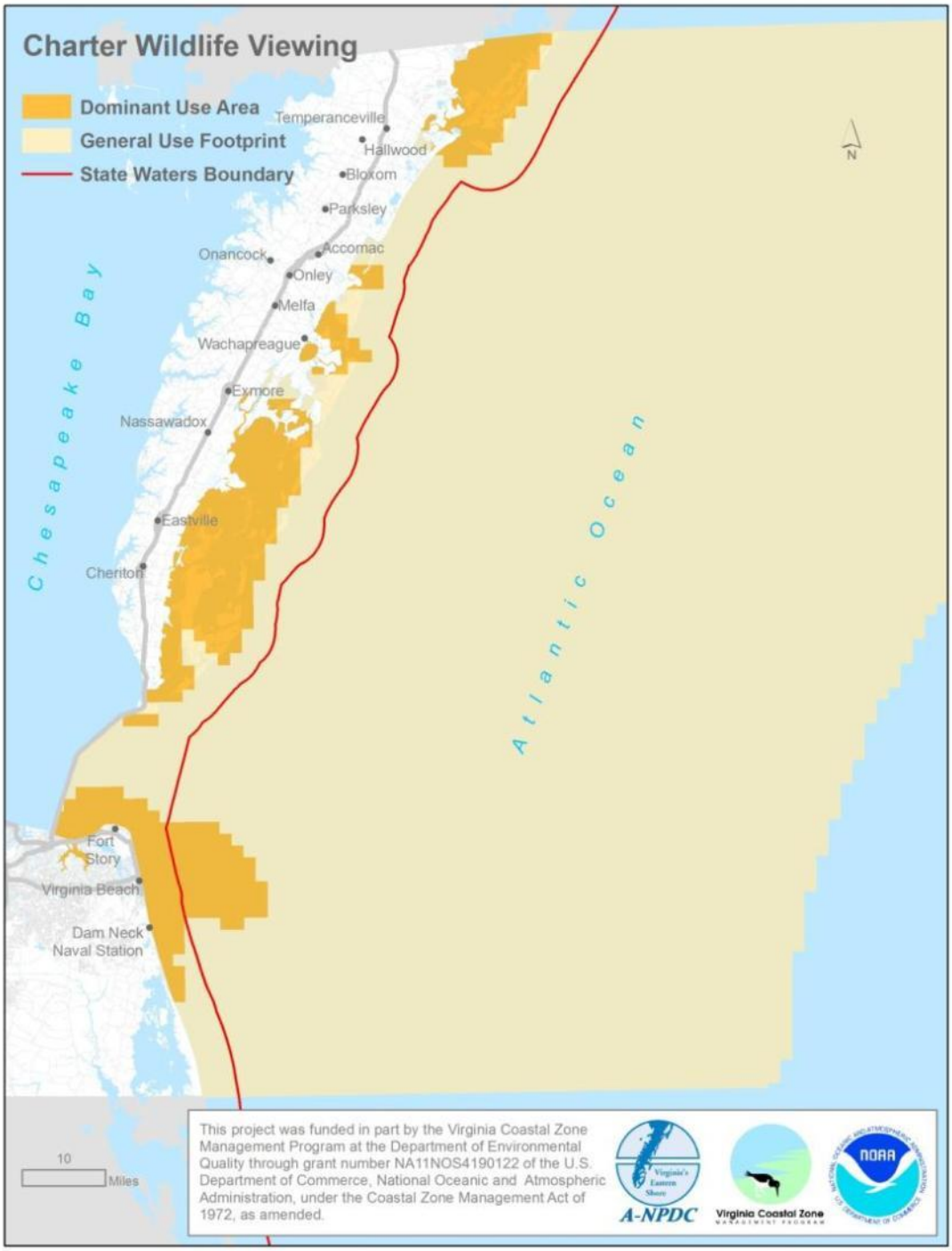
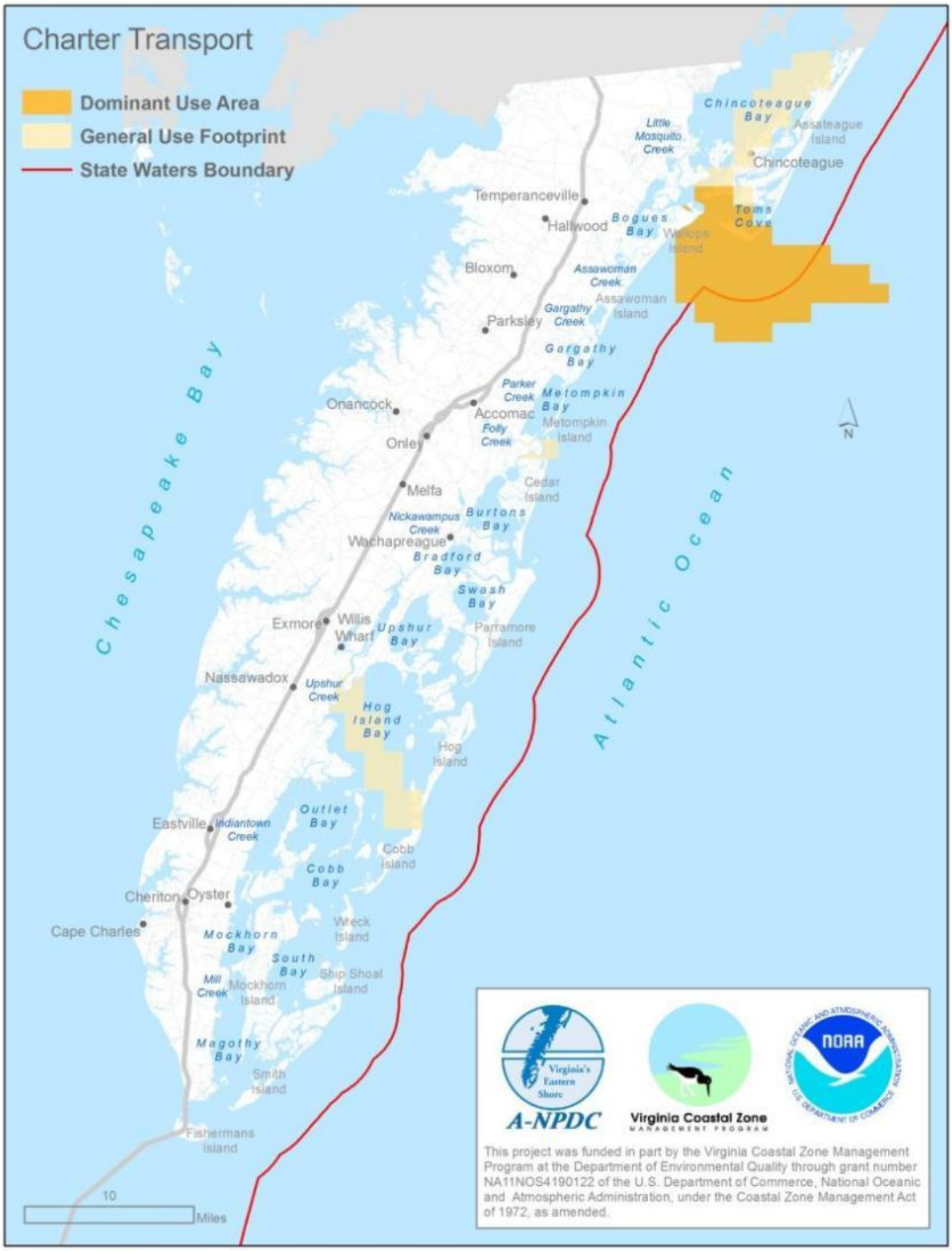


Figure 13 – Map illustrating Charter Wildlife Viewing general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

<u>Figure 14</u> – Map illustrating Charter Scenic Viewing general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 15</u> – Map illustrating Charter Transport general and dominant use areas for the Eastern Shore of Virginia Seaside as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

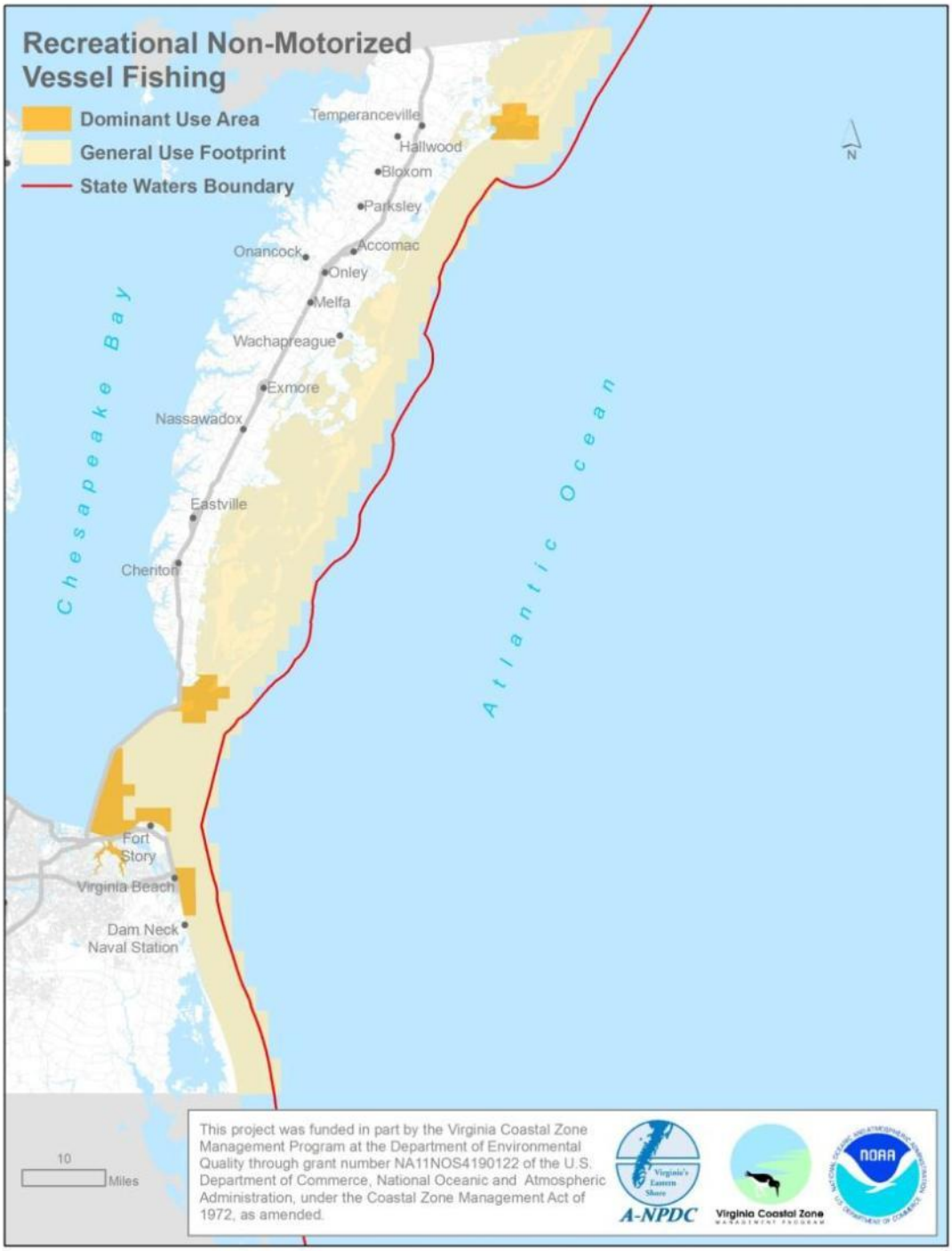
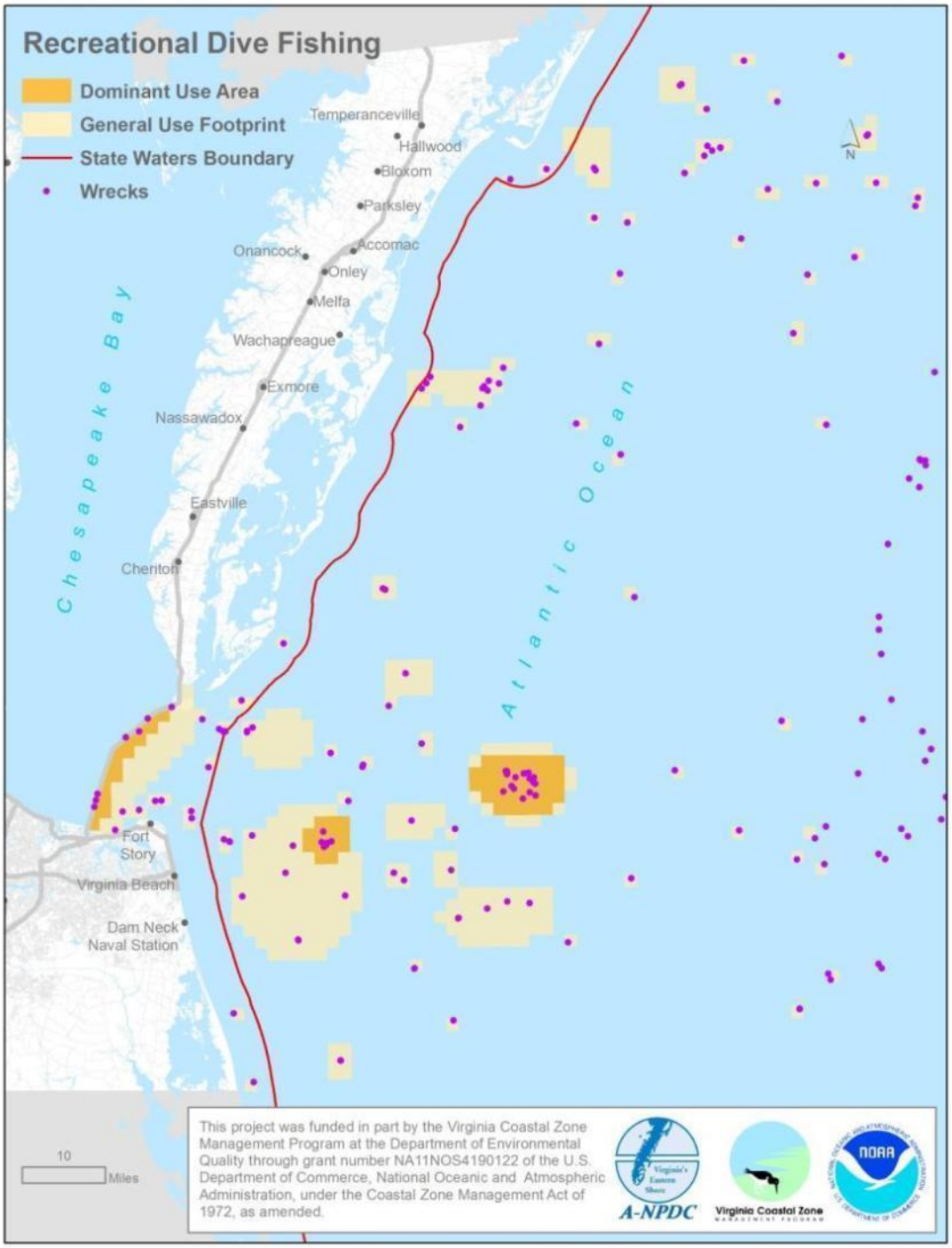


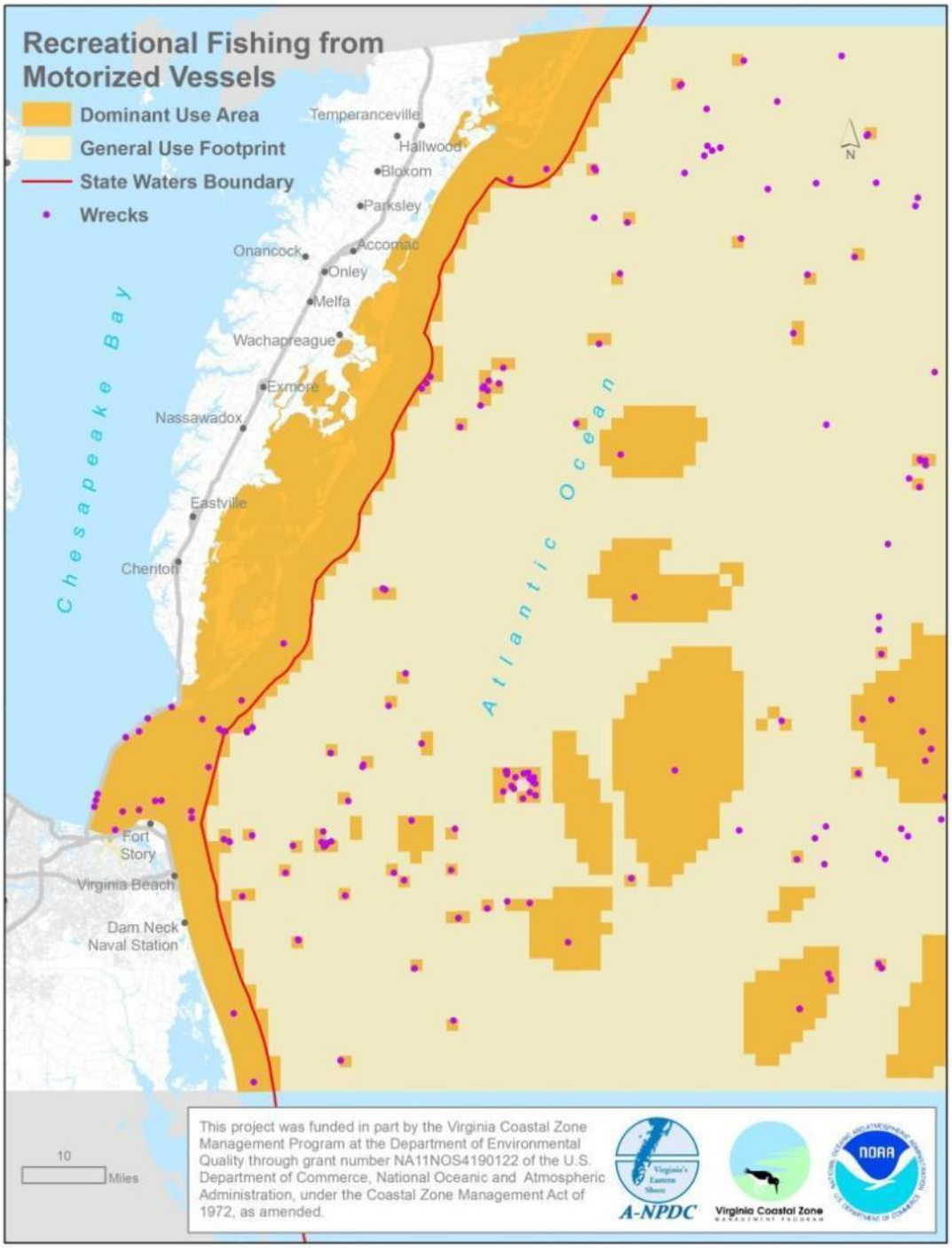
Figure 16 – Map illustrating Recreational Non-Motorized Vessel Fishing general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



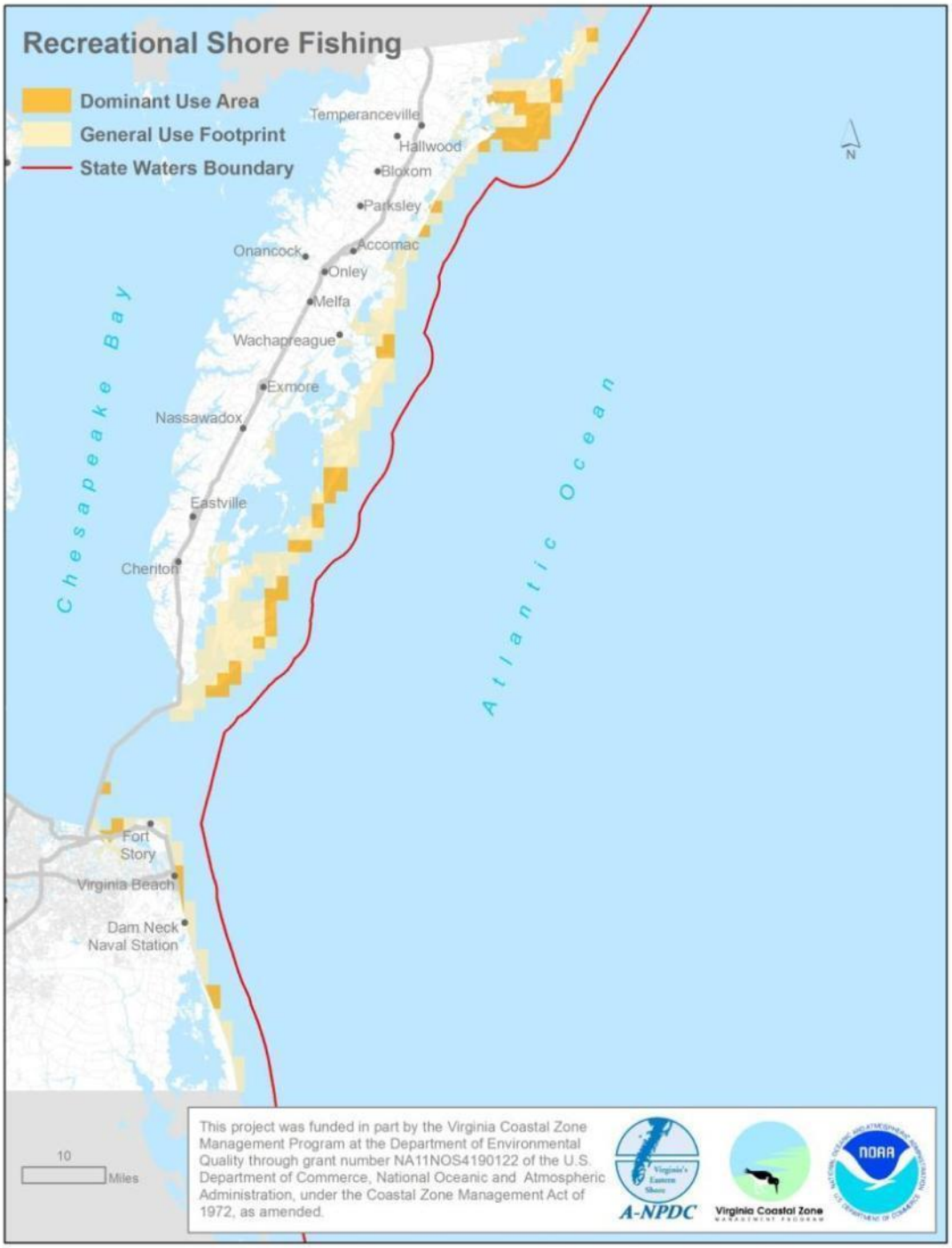
<u>Figure 17</u> – Map illustrating Recreational Dive Fishing general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 18</u> – Map illustrating Recreational Fishing from Motorized Vessels general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 19</u> – Map illustrating Recreational Shore Fishing general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

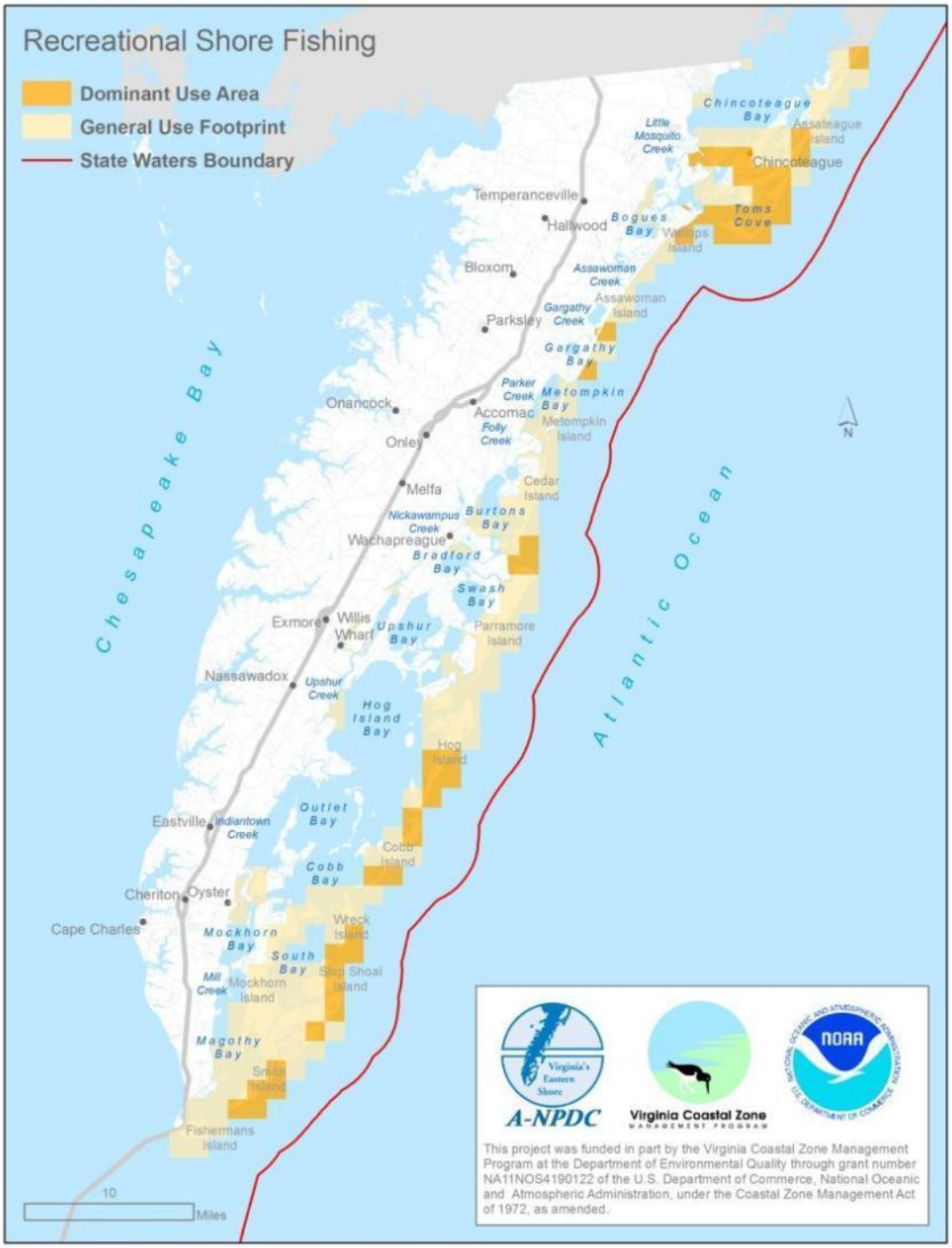
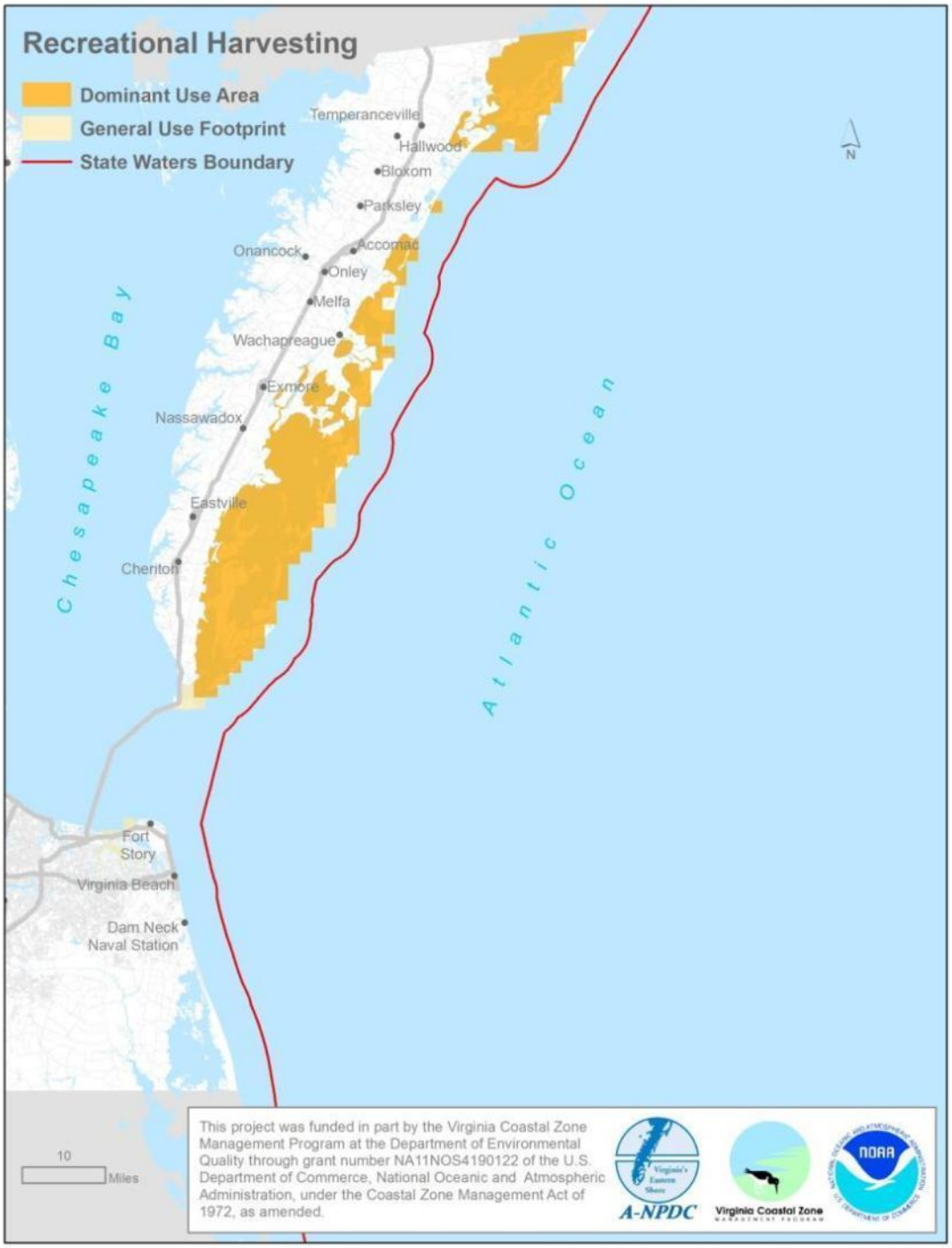


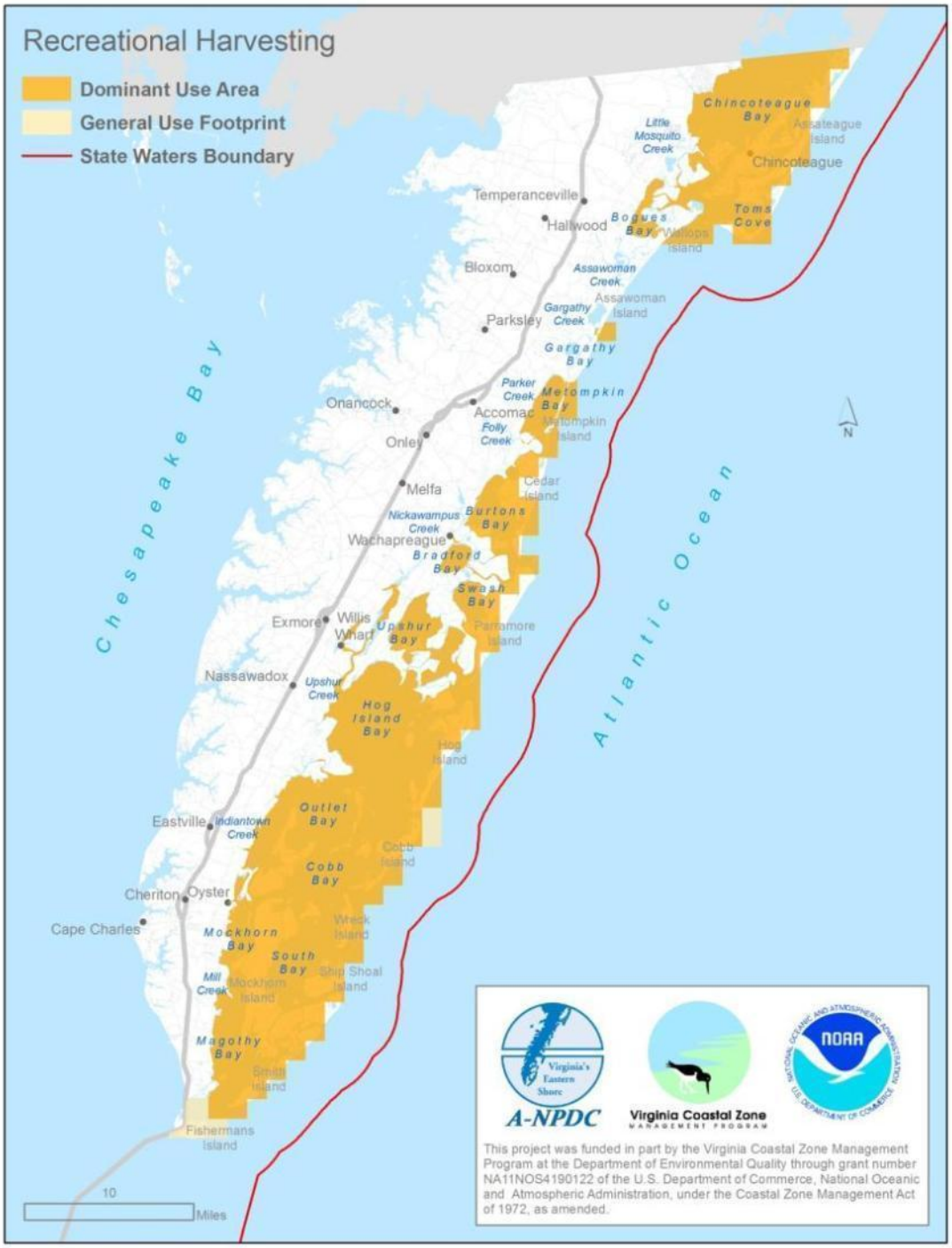
Figure 20 – Map illustrating Recreational Shore Fishing general and dominant use areas for the Eastern Shore of Virginia Seaside as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



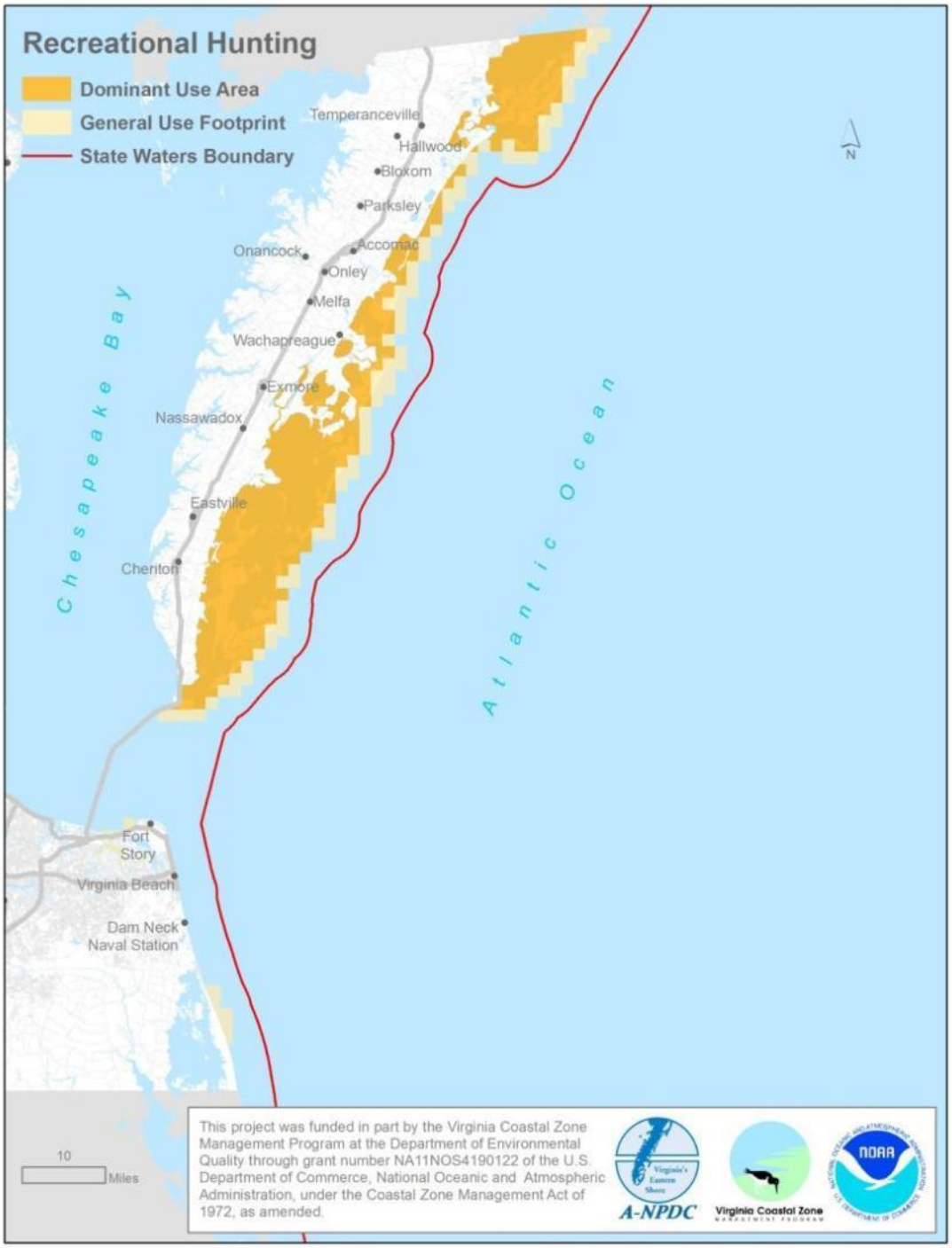
<u>Figure 21</u> – Map illustrating Recreational Shellfish Harvesting general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



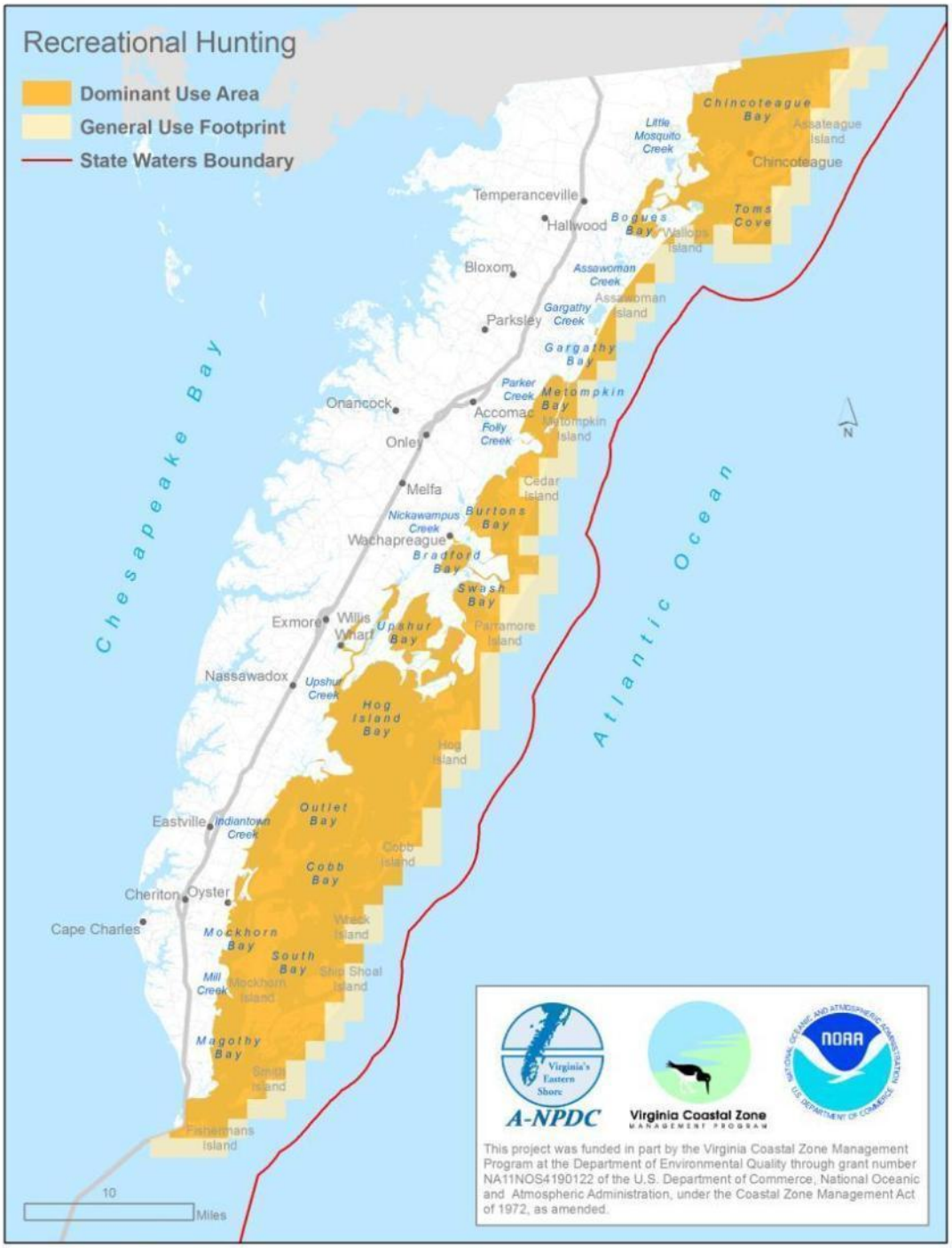
<u>Figure 22</u> – Map illustrating Recreational Shellfish Harvesting general and dominant use areas for the Eastern Shore of Virginia Seaside as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



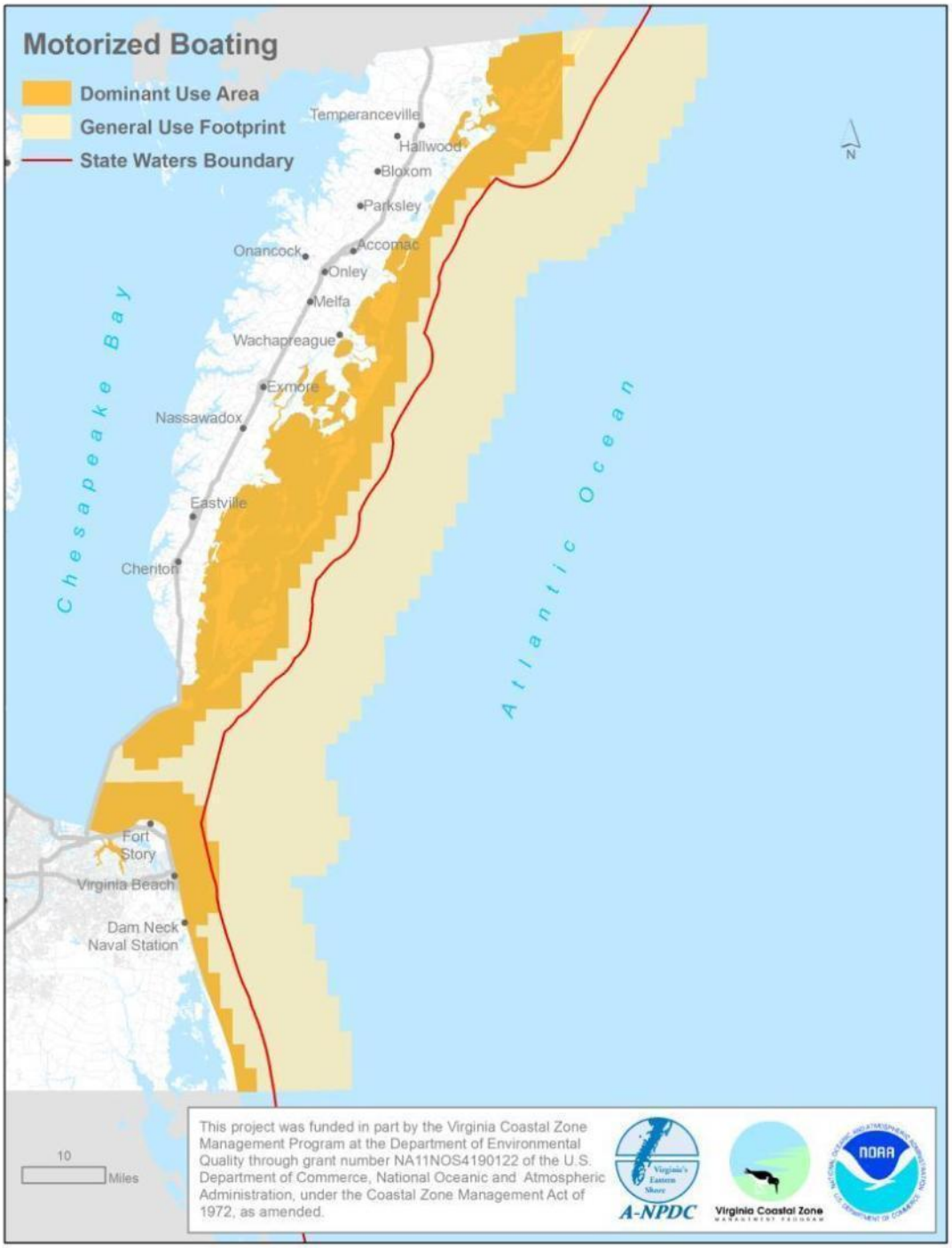
<u>Figure 23</u> – Map illustrating Recreational Waterfowl Hunting general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 24</u> – Map illustrating Recreational Waterfowl Hunting general and dominant use areas for the Eastern Shore of Virginia Seaside as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 25</u> – Map illustrating Motorized Boating general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

<u>Figure 26</u> – Map illustrating Paddling general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

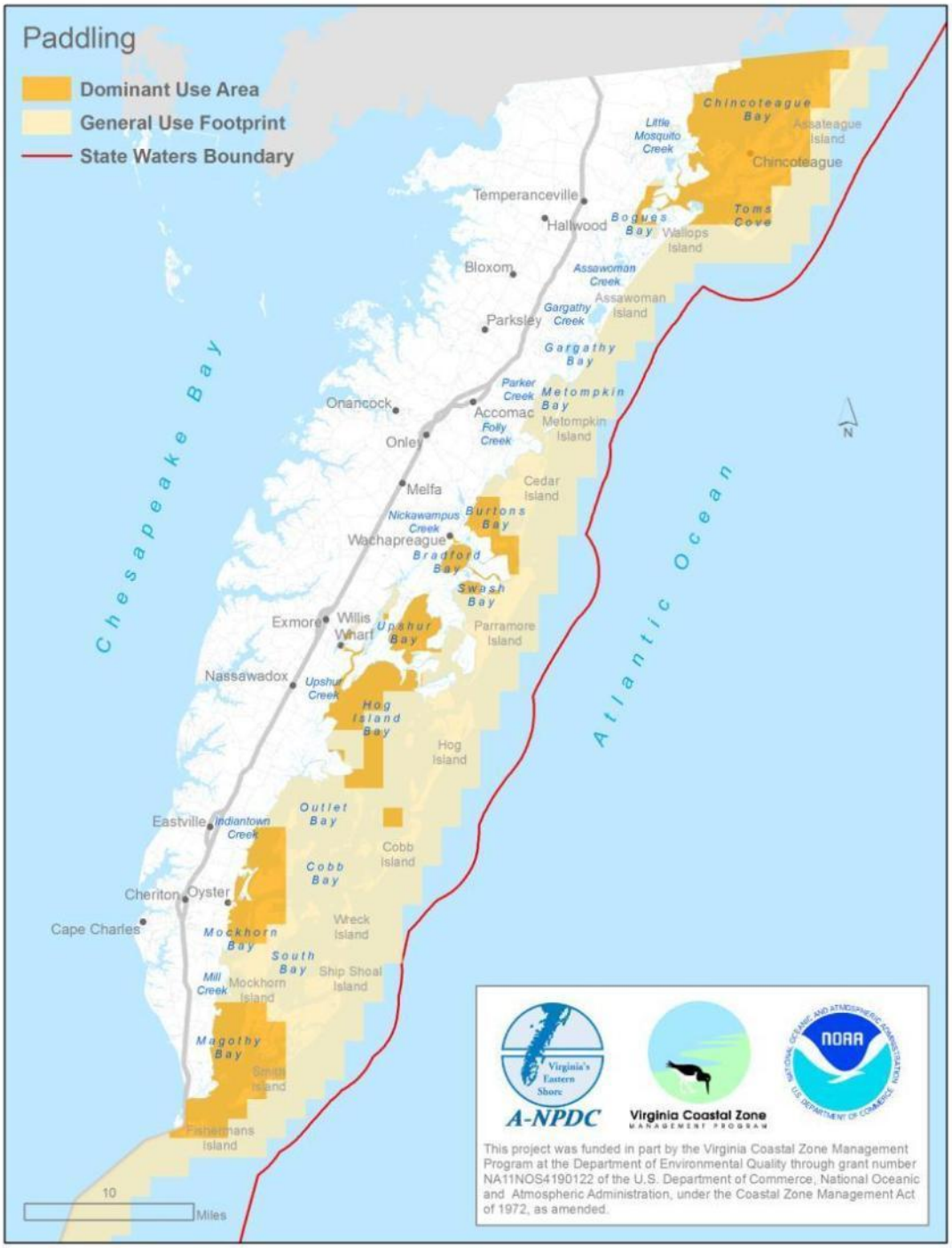
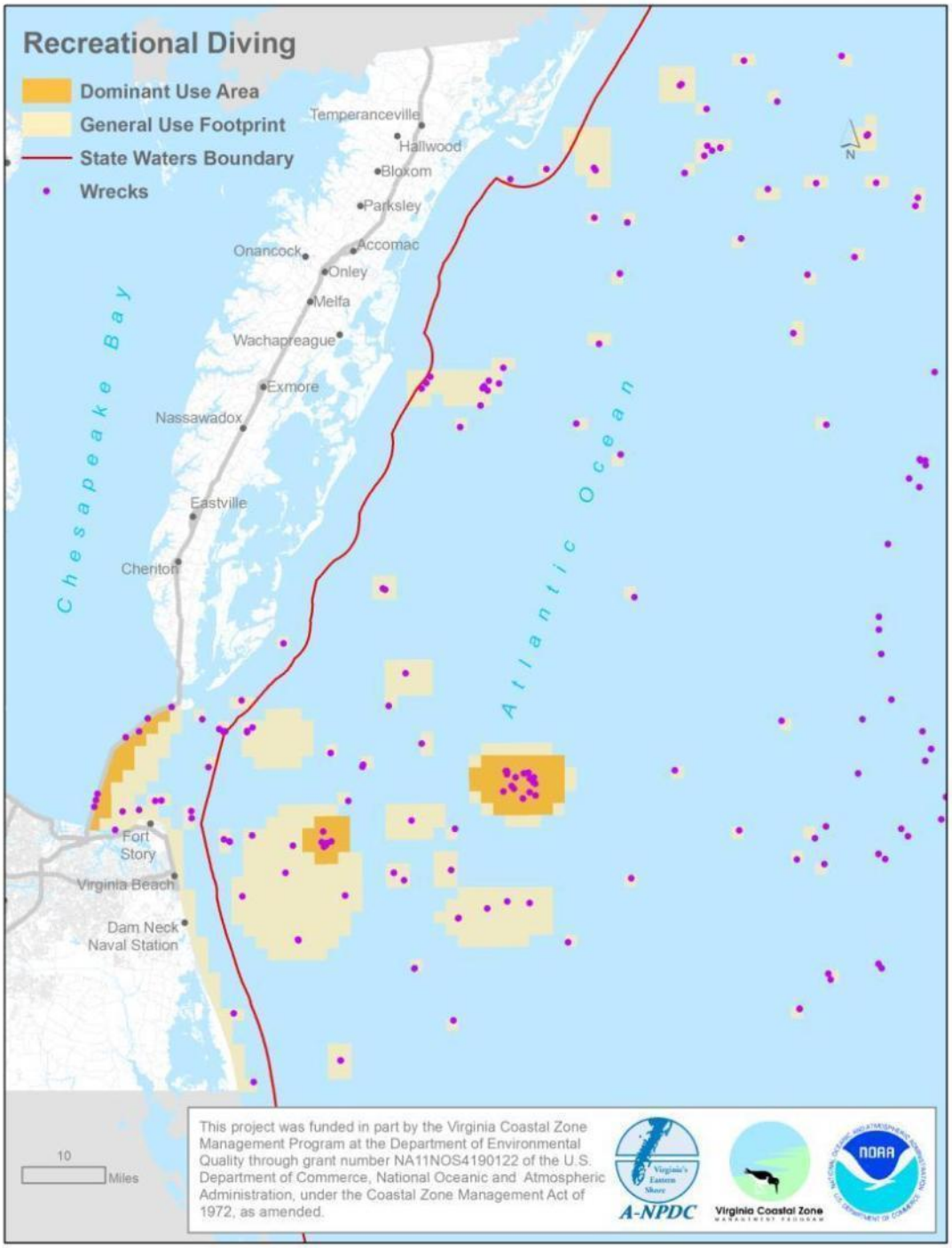


Figure 27 – Map illustrating Paddling general and dominant use areas for the Eastern Shore of Virginia Seaside as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

Figure 28 – Map illustrating Sailing general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 29</u> – Map illustrating Recreational Scuba/Snorkeling/Diving general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

<u>Figure 30</u> – Map illustrating Shore Use general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

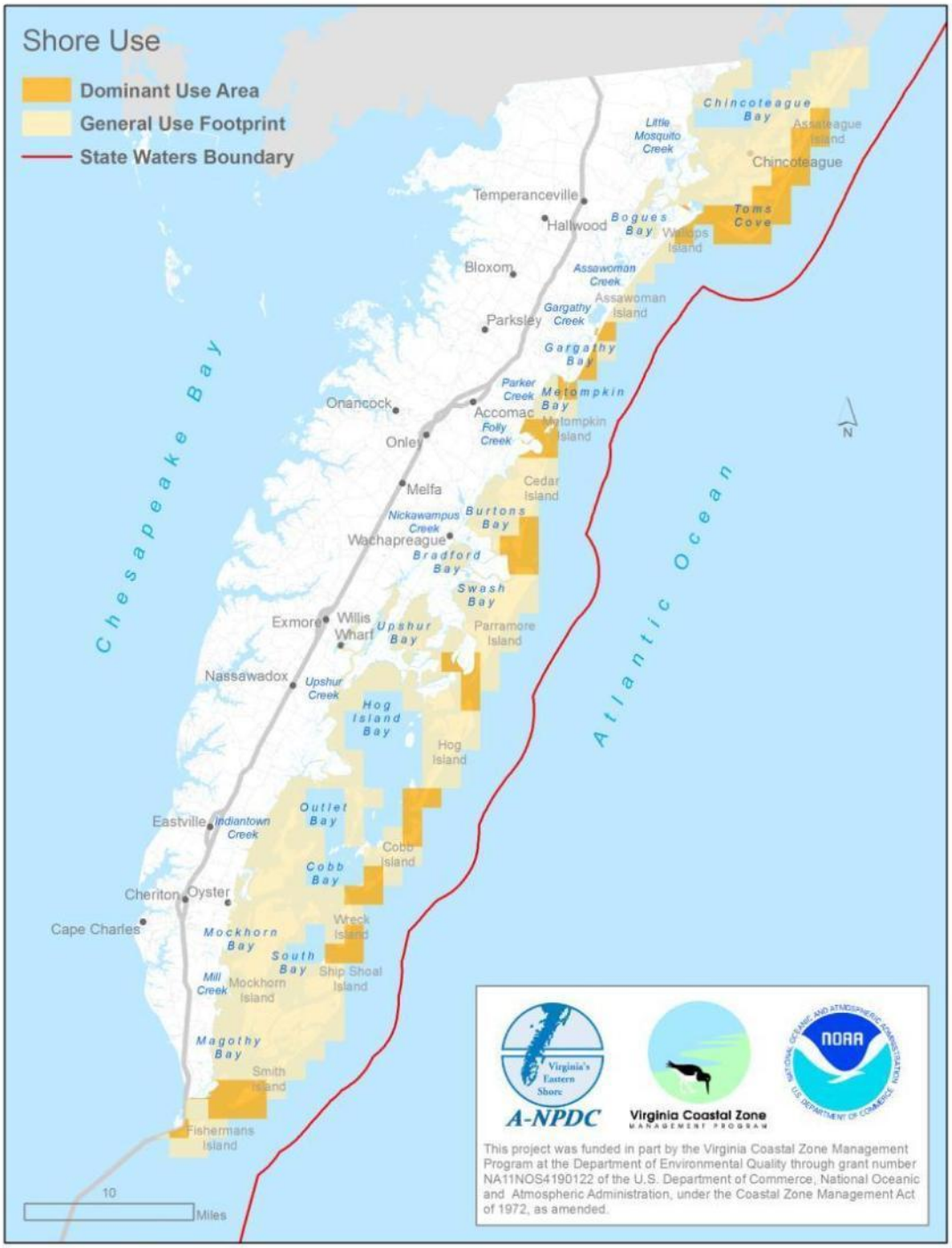


Figure 31 – Map illustrating Shore Use general and dominant use areas for the Eastern Shore of Virginia Seaside as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

<u>Figure 32</u> – Map illustrating Surface Water Sports general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

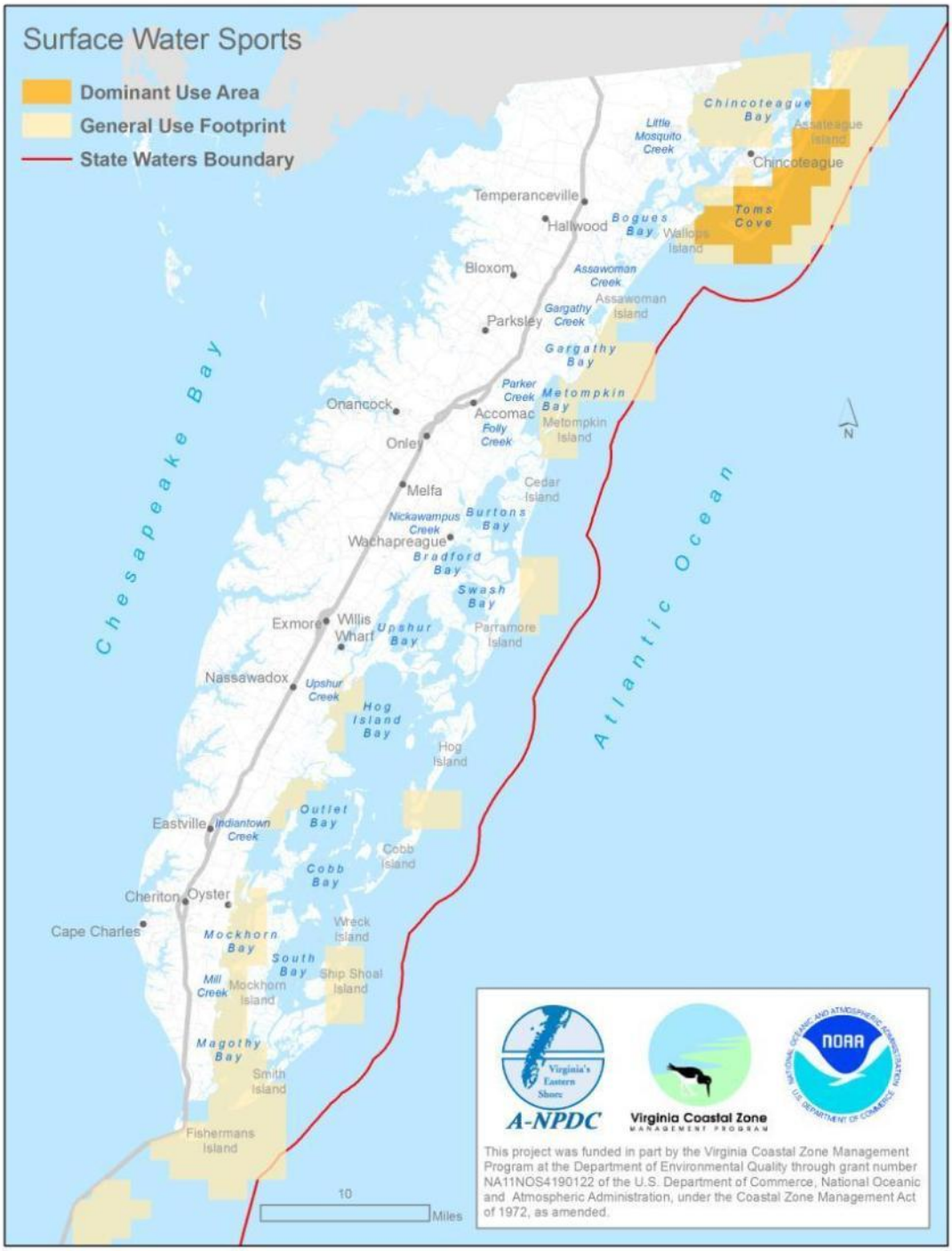


Figure 33 – Map illustrating Surface Water Sports general and dominant use areas for the Eastern Shore of Virginia Seaside as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

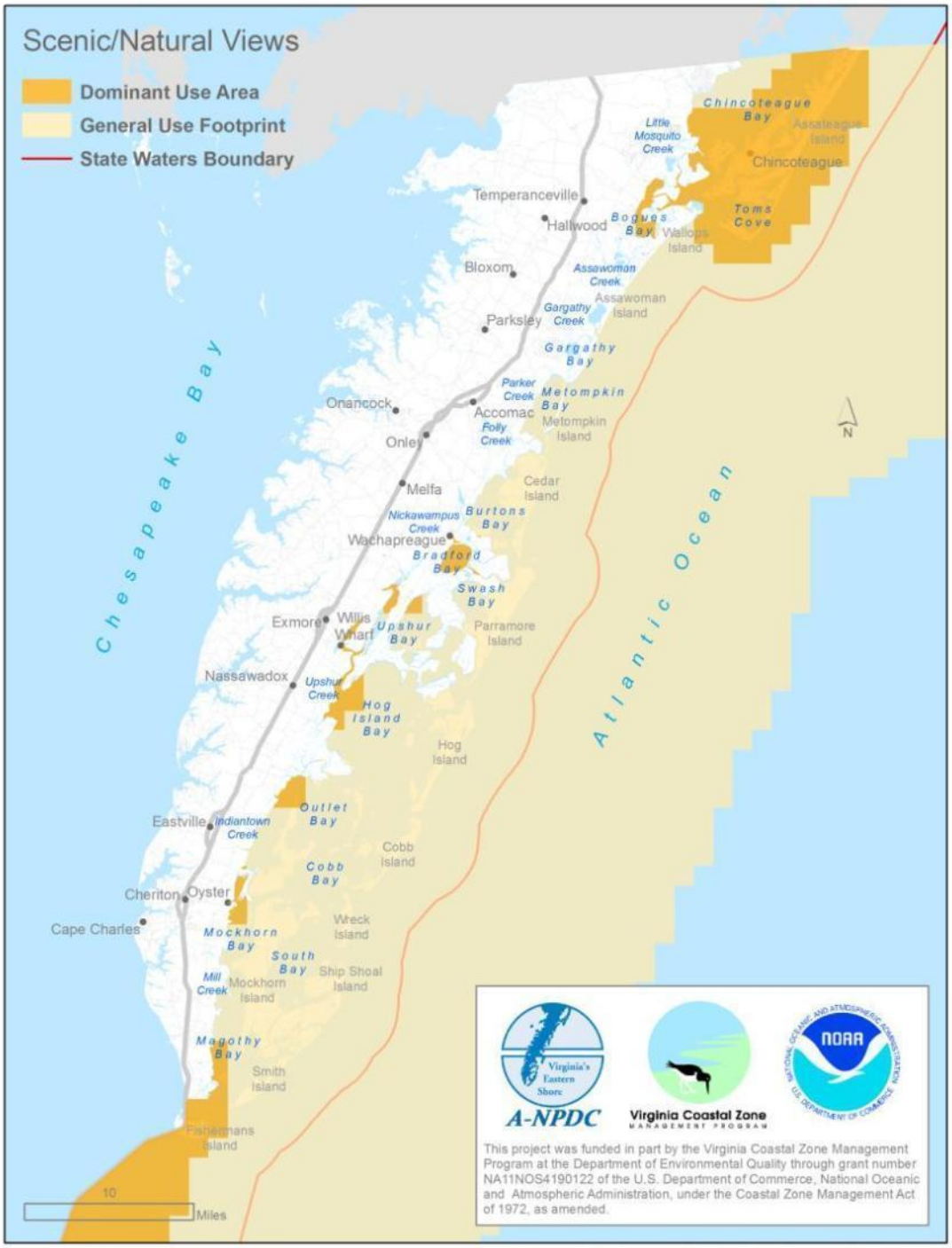
3.0 RESULTS & DISCUSSION

<u>Figure 34</u> – Map illustrating Swimming general and dominant use areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

Figure 35 – Map illustrating Historic and Cultural general and dominant areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION



<u>Figure 36</u> – Map illustrating Scenic and Natural general and dominant areas for the Virginia Atlantic Coast as described and validated by participants of the 2012 Recreational Use Participatory GIS Workshop.

3.0 RESULTS & DISCUSSION

Charter Fishing – Small Vessel (**Figure 9**) uses generally occur from shore out to the shelf break and slightly beyond. Stakeholders agreed that dominant-use areas for relatively smaller (6-pack) vessels are the areas within state waters, adjacent to wrecks and other fishing grounds, the offshore canyons, and the entire shelf-break area from approximately 100-500 fathom depth.

Stakeholders generally knew less about Charter Fishing – Large Vessel (**Figure 10**) use than small vessel charter fishing. The general use footprint extends from the shore out to the shelf-break and slightly beyond. Dominant-use areas were limited to the mouth of the Chesapeake Bay and Fishermans Island vicinity.

Use-information for Charter Diving and Snorkeling (**Figure 11**) indicated that the use generally occurs at the mouth of the Chesapeake Bay and east of state waters to a depth of approximately 150 feet. The dominant use areas include relatively shallow waters around the Chesapeake Bay Bridge Tunnel and offshore wrecks off the southern end of Assateague Island.

Charter Party Cruises (**Figure 12**) were reported to occasionally occur within the entire interior of the barrier islands and at the mouth of the Chesapeake Bay. Stakeholders were aware of charter party cruises occurring at specific locations and these areas were considered dominant-use areas. The dominant-use areas included the Chincoteague vicinity including Chincoteague Inlet, Toms Cove Hook at the southern end of Assateague Island, and southern Chincoteague Bay.

Stakeholders reported that Charter Wildlife Viewing (**Figure 13**) generally occurs at the mouth of the Chesapeake Bay and from shore to the shelf-break. Dominant-use areas were reported in the tidal creeks, lagoons, and inlets on the Seaside. Specifically, the most dominant-use areas include the Chincoteague Inlet vicinity, Metompkin Inlet/Folly Creek vicinity, the Wachapreague/Wachapreague Inlet vicinity, and the vast majority of the areas inside the barrier islands from Quinby/Quinby Inlet south to Fishermans Island. Stakeholders indicated that this use is highly seasonal and dependent on migrations times of aquatic species and wildlife.

3.0 RESULTS & DISCUSSION

Use-information for Charter Scenic Viewing (**Figure 14**) indicated that the use generally follows the trend of Charter Wildlife Viewing (described above) with occurs at the mouth of the Chesapeake Bay and from shore to approximately 5 miles east of the state water boundary. The dominant use areas include the Chincoteague Inlet/Chincoteague Bay vicinity, the Wachapreague/Wachapreague Inlet vicinity Broadwater Bay, marshes west of Hog Island, and the Oyster/Cobb Bay/Sand Shoal Inlet vicinity. Stakeholders indicated that this use is seasonal with most of the use occurring from Spring to late Fall.

There was relatively less known about Charter Transport (**Figure 15**) than other mapped uses with only two of five groups having any knowledge of this use. Stakeholders reported general usage to occur occasionally along navigable routes to the barrier islands including Willis Wharf to Hog Island, Folly Creek to Cedar Island, and the Chincoteague/Chincoteague Bay vicinity. The most dominant use was reported to occur along a route from Chincoteague to a large sand mining operation off of Toms Cove Hook at the south end of Assateague Island.

Recreational Non-Motorized Vessel Fishing (**Figure 16**) was reported to occasionally occur within the entire interior of the barrier islands, the offshore area from the barrier islands approximately to the state water boundary, and at the mouth of the Chesapeake Bay. The dominant-use areas included the Chincoteague Inlet/Toms Cove Hook vicinity, and the Wise Point/Fishermans Inlet vicinity.

Stakeholders reported that Recreational Dive Fishing (**Figure 17**) generally occurs at the mouth of the Chesapeake Bay and adjacent to offshore wrecks. Dominant-use areas along the Seaside were only reported for the wrecks at the mouth of the Chesapeake Bay, areas adjacent to the Chesapeake Bay Bridge Tunnel, and a cluster of wrecks approximately 12 miles east of the mouth of the Chesapeake Bay.

3.0 RESULTS & DISCUSSION

One of the most widely-reported and popular uses in the study area was Recreational Fishing from Motorized Vessels (**Figure 18**). Stakeholders reported this use generally occurring over the entire study area. Dominant-use areas include the entire area inside of the barrier islands, mouth of the Chesapeake Bay, offshore area to the 3-mile state waters boundary, at offshore wrecks, and at the canyons and other fishing grounds at the shelf break. Stakeholders described the heaviest use to occur within 30 miles of ports and boat launches with use occurring seasonally.

Use-information for Recreational Shore Fishing (**Figures 19 & 20**) indicated that the use generally occurs along all of the Seaside barrier islands. The dominant use areas include the following islands: Assateague, north Wallops, Metompkin, south Cedar, Dawson Shoals, north Parramore, Hog, Cobb, Wreck, Ship Shoal, Myrtle, and Smith. Stakeholders indicated that this use is seasonal with most of the use occurring from Spring to late Fall.

The extent to which Recreational Shellfish Harvesting (**Figure s 21 & 22**) occurred was relatively less understood than other mapped uses. Stakeholders reported general usage to occur on the interior of the barrier islands. The most dominant use was reported to occur within Baylor Grounds and shallow unassigned bottom areas that are suitable for shellfish growth.

Recreational Waterfowl Hunting (**Figures 23 & 24**) was reported to generally coincide with Recreational Shellfish Harvesting (described above), occurring within the entire inner barrier island system and approximately one-half mile offshore. The dominant-use areas were reported to be the entire inner barrier island system during open season.

Motorized Recreational Boating (**Figure 25**) was reported to be one of the more popular recreational activities on the Seaside with the use generally occurring from shore to approximately 10-15 miles offshore and at the mouth of the Chesapeake Bay. The use predominantly occurs in the tidal creeks, lagoons, and inlets within the barrier island system with additional dominant use areas including the areas approximately within 2 miles offshore and the areas adjacent to the Chesapeake Bay Bridge Tunnel and the

southern tip of the Eastern Shore peninsula. The use was reported as occurring seasonally with the peak use times coinciding with the Spring to late Fall months.

Stakeholders reported that Paddling (**Figures 26 & 27**) generally occurs along the entire interior of the barrier island system and at the mouth of the Chesapeake Bay with some use occurring offshore as far as one mile. Dominant-use areas along the Seaside were reported for the entire Chincoteague vicinity, the Wachapreague/Wachapreague Inlet vicinity, the Quinby vicinity, Willis Wharf, Machipongo River, Red Bank, the Oyster vicinity, and the waters surrounding Wise Point. Paddling mostly coincides with the Seaside Water Trail and predominantly occurs seasonally from Spring to late Fall.

Use-information for Sailing (**Figure 28**) indicated that the use generally occurs from the Seaside barrier islands to the eastern boundary of the study area as there is dispersed transit throughout the study area. Additional general usage was reported for the navigable channels leading to the ocean from the ports of Chincoteague, Wachapreague, and Oyster. There were no dominant-use areas reported for the Seaside of the Eastern Shore.

Stakeholders reported that Recreational Diving (**Figure 29**) coincides with Charter Dive Fishing (described above) with the use generally occurring at the mouth of the Chesapeake Bay and adjacent to offshore wrecks. Dominant-use areas along the Seaside were only reported for the wrecks at the mouth of the Chesapeake Bay, areas adjacent to the Chesapeake Bay Bridge Tunnel, and a cluster of wrecks approximately 12 miles east of the mouth of the Chesapeake Bay.

Shore Use (**Figures 30 & 31**) was one of the most popular recreational activities reported for the Seaside with the use generally occurring along all beaches and marshes along the interior of the barrier island system. The most predominantly-used area was reported to be at Assateague Island, which is the only point on the barrier islands accessible by

vehicle. Other dominant-use areas included the areas adjacent to the following tidal inlets: Chincoteague, Gargatha, Metompkin, Wachapreague, Quinby, Machipongo, Sand Shoal, New, and Fishermans. The use was reported as occurring year-round with the peak use times coinciding with the Spring to late Fall months.

Use-information for Surface Water Sports (**Figures 32 & 33**) indicated that general-use areas exist at the Chincoteague Bay, various spots on the barrier islands and at the tidal inlets, various spots in the tidal creeks and lagoons, the southern tip of the Eastern Shore peninsula, and the Chesapeake Bay Bridge Tunnel. Since kite and wind surfing occasionally occur up to one mile offshore, some general use areas were mapped to this distance outside of various tidal inlets. There only dominant-use area reported for the Seaside of the Eastern Shore was at southern Assateague Island from the parking area to the southern end of the island. This area is a very popular location for surfing, body boarding, and various other surface water sports. Surfing was the only surface water sport to be reported as occurring year-round. All surface water sports were reported to peak during the warm weather months from Spring to late Fall.

Use-information for Swimming (**Figure 34**) generally coincided with Shore Use and Surface Water Sports (described above). The general-use areas mapped included the entire Seaside barrier island chain with some inland areas near harbors, landings, and boat ramps. The most dominant-use area reported for the Seaside was for Assateague Island near the parking lots with other heavily-used areas at the beaches adjacent to following tidal inlets: Gargatha, Metompkin, Wachapreague, Sand Shoal, and Fishermans. The use was reported as occurring seasonally during the warm weather months from Spring to late Fall.

3.0 RESULTS & DISCUSSION

Historic and Cultural Areas (**Figure 35**) included areas with inherent cultural, traditional, archaeological, religious, spiritual, tribal or historic value. These areas were mapped as a preliminary attempt to identify specific areas that could be revisited and assessed in greater detail in the future. The general Historic and Culture area footprint included the entire Seaside barrier island system. The most valuable areas included Assateague and Chincoteague Islands, north Cedar Island, south Hog Island at the former location of the village of Broadwater, south Cobb Island, north Smith Island, the Chesapeake Bay Bridge Tunnel, and Wise Point and various other landings on the southern mainland of the Seaside.

Scenic and Natural Areas (**Figure 36**) were mapped for the exact reason as Historic and Cultural Areas described above. The general Scenic and Natural area footprint included the entire Seaside barrier island system and the offshore viewshed from the barrier islands. The most important areas included the entire Chincoteague vicinity, Bradford Bay, Upshur Bay, Willis Wharf, the Machipongo River, Mockhorn Bay, Wise Point, Fishermans Island, and the Chesapeake Bay Bridge Tunnel and its viewshed to the east.

3.0 RESULTS & DISCUSSION

3.3 Aerial Surveys

The recreational uses observed during the 2012 and 20013 aerial surveys for the following uses are summarized in the following table (**Figure 37**). All counts of observed recreational uses are summarized in **Appendix F.**

Recreational Use	Observed	Not Observed
Indeterminable Recreational Use	✓	
Charter Fishing		✓
Charter Diving/Snorkeling		✓
Charter Party Cruises		✓
Charter Wildlife Viewing		✓
Charter Scenic Viewing		✓
Charter Transport		✓
Recreational Kayak & Non-Motorized Vessel Fishing		✓
Recreational Dive Fishing		✓
Recreational Fishing from Motorized Vessels	✓	
Recreational Shore Fishing	✓	
Recreational Shellfish Harvesting		✓
Recreational Waterfowl Hunting		✓
Motorized Boating	✓	
Paddling	✓	
Sailing	✓	
Scuba/Snorkeling/Diving		✓
Shore Use	✓	
Surface Water Sports	✓	
Swimming	✓	

Figure 37 – Table summarizing recreational uses observed during the 2012 and 2013 aerial surveys.

As noted in **Section 2.3.2**, chartered uses were not counted since they could not easily be distinguished from non-chartered uses. Recreational Shellfish Harvesting and Scuba/Snorkeling/Diving are commonly-known uses on the Seaside during the warm-weather months, but these uses were not observed during the surveys. It was not

expected to encounter any Recreational Waterfowl Hunting since the peak use time is during colder-weather months and surveys were not conducted during these times.

Examples of photographs from each observed recreational use are included in **Figure 38**.

Indeterminable Recreational Use

Recreational Fishing from Motorized Vessel

Recreational Shore Fishing

Motorized Boating

Figure 38 – Examples of photographs of each recreational use observed during the 2012 and 2013 aerial surveys.

Paddling

Sailing

Shore Use

Surface Water Sports

Swimming

<u>Figure 38 (Continued)</u> – Examples of photographs of each recreational use observed during the 2012 and 2013 aerial surveys.

3.0 RESULTS & DISCUSSION

3.3.1 Recreational Uses by Flight Date

It is well understood that the majority of recreational use occurs on days when more people are not working and when weather conditions are optimal. The aerial surveys were carried out in a variety of meteorological conditions and during both weekdays and weekends to try to quantify these differences and their influence on recreational use. **Figure 39** summarizes recreational uses by flight date. Flight logs containing specific details of the flights and meteorological condition notes are included in **Appendix G**.

Flight Date	Indeterminable Rec. Use	Rec. Fishing from Motorized Vessel	Recreational Shore Fishing	Motorized Boating	Paddling	Sailing	Shore Use	Surface Water Sports	Swimming
7/3/12	3	9	3	75	4	0	748	43	296
***8/19/12**	30	4	4	71	7	0	171	7	12
8/23/12	27	14	4	18	6	1	135	1	41
8/30/12	22	13	5	31	1	0	55	1	3
***9/1/12**	39	32	2	144	14	0	415	5	37
9/6/12	0	3	0	0	0	0	0	0	0
***9/9/12**	9	5	0	9	0	0	55	3	2
***9/22/12**	4	10	0	2	1	1	0	0	0
***7/6/13**	15	56	0	62	2	0	24	0	0
***7/27/13**	38	34	0	100	0	2	88	0	0
9/5/13	10	28	0	19	0	0	1	0	0
9/26/13	5	4	0	0	0	2	0	0	0
***9/28/13**	2	1	0	0	0	0	0	0	0
10/3/13	12	22	2	0	1	0	9	0	0
Totals	**216**	**235**	**20**	**531**	**36**	**6**	**1,701**	**60**	**391**
*= Flights occurring on weekends									

Figure 39 – Table summarizing recreational use counts observed during the 2012 and 2013 aerial surveys.

3.0 RESULTS & DISCUSSION

The recreational use most observed during the aerial surveys was Shore Use (1,701) followed by Motorized Boating (531), Swimming (391), and Recreational Fishing from Motorized Vessel (235).

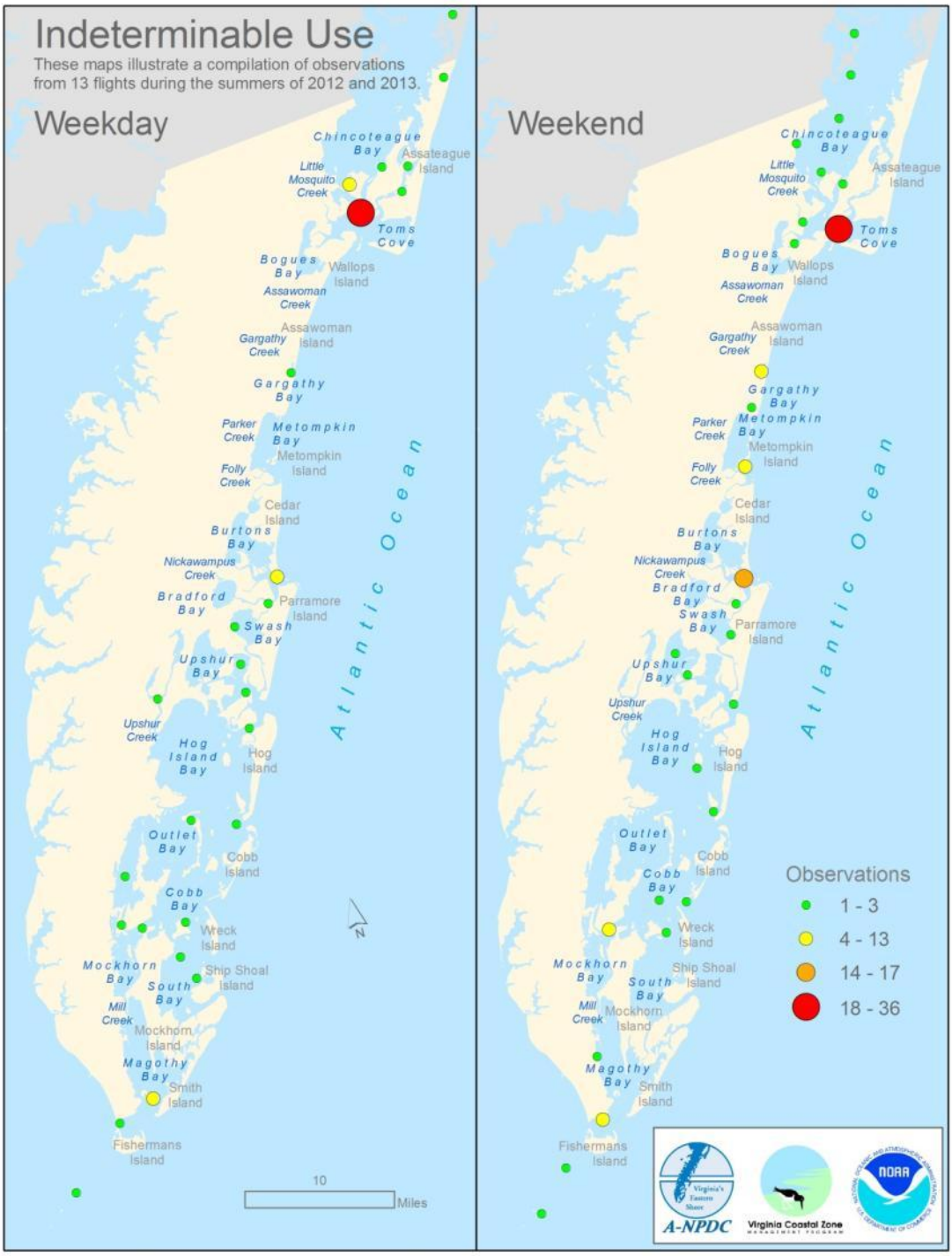
Indeterminable Recreational Use (216) ranked as the fifth most observed use indicating that there was a significant amount of photographs that were not of adequate resolution to distinguish use type. This is largely due to the fact that many photographs were taken at large distances from the use and while the digital camera had the capability to take high resolution from afar; it often could not bring the use into focus due to the speed of the aircraft.

The most observations for any use type during a single aerial survey occurred on July 3, 2012 when 748 Shore Users were observed. This day represented near ideal conditions for peak recreational use as it was a national holiday weekend with clear conditions and minimal winds. The majority of Shore Use and Swimming observations occurred at the Assateague Island National Seashore. The Assateague Island National Seashore is the only public beach on the Seaside that is accessible by automobile and as such, there are noticeable trends in the Shore Use and Swimming data. These uses occurring at the only public beach on the Seaside were observed in the greatest numbers mostly because they can be done by a greater portion of the population and they typically require less of an investment in time and money. Aside from Shore Use and Swimming, the other uses can require equipment that can be too costly for some, experience and free time which fewer people have.

The data in **Figure 39** also show that weather conditions can have a significant impact on recreational use. This is especially true for the uses that occur in places that can only be accessed by vessel, such as Recreational Fishing from Motorized Vessel and Motorized Boating. While it was attempted to perform the aerial surveys during ideal conditions in order to capture peak use, there were surveys that occurred on days that would not be classified as “ideal” conditions. The survey on Thursday, September 5, 2013 resulted in a below average number of observations due to a moderate chance of daytime storms in the forecast and conditions worsening over the duration of the survey. Conversely, surveys occurring on days with zero to minimal chances of daytime storms and negligible winds were consistently the days when an above average number of observations occurred.

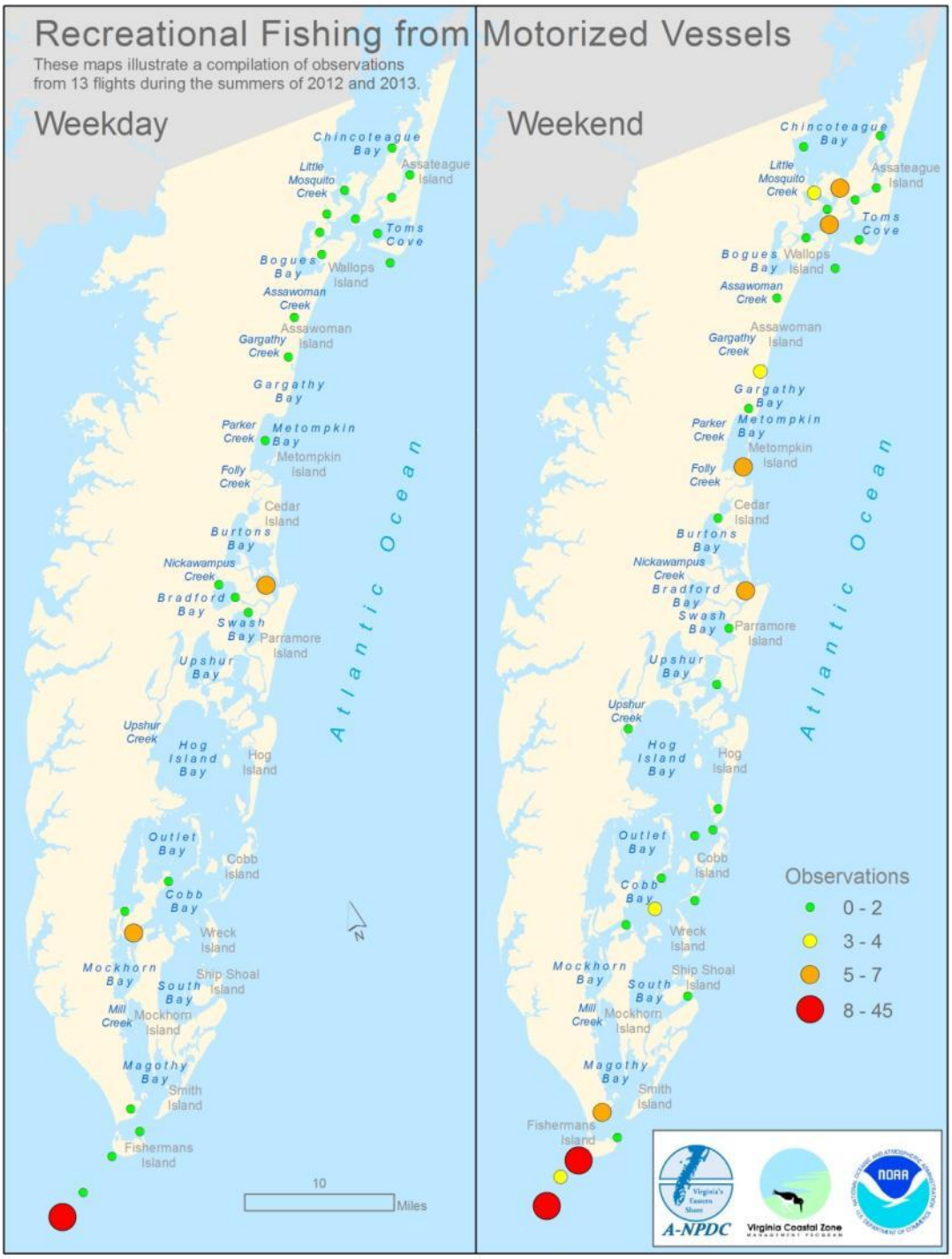
Figures 40 through 48 illustrate comparisons of recreational uses occurring on the weekends and weekdays during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION



<u>Figure 40</u> – Maps showing Indeterminable Recreational Use observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION



<u>Figure 41</u> – Maps showing Recreational Fishing from Motorized Vessel observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION

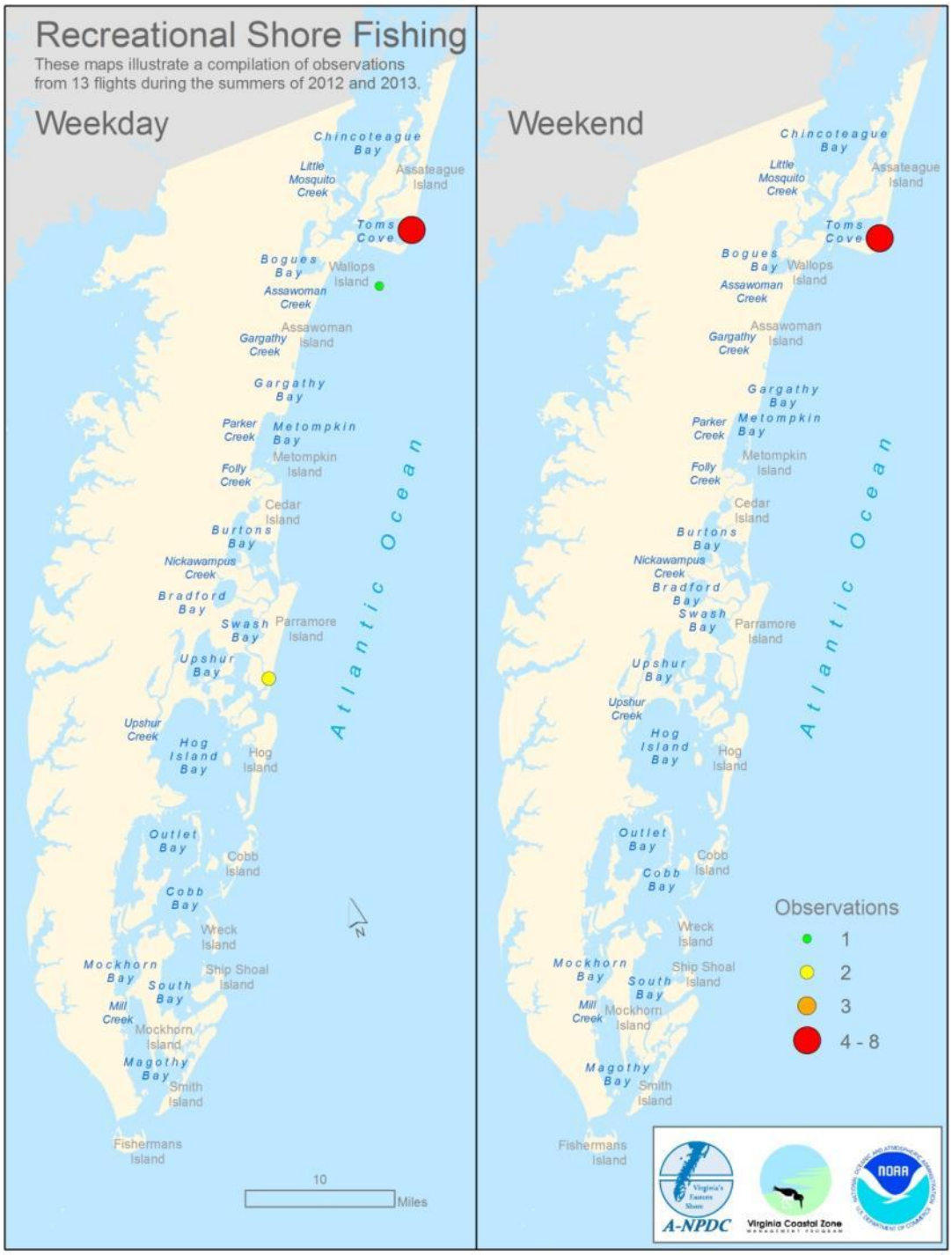
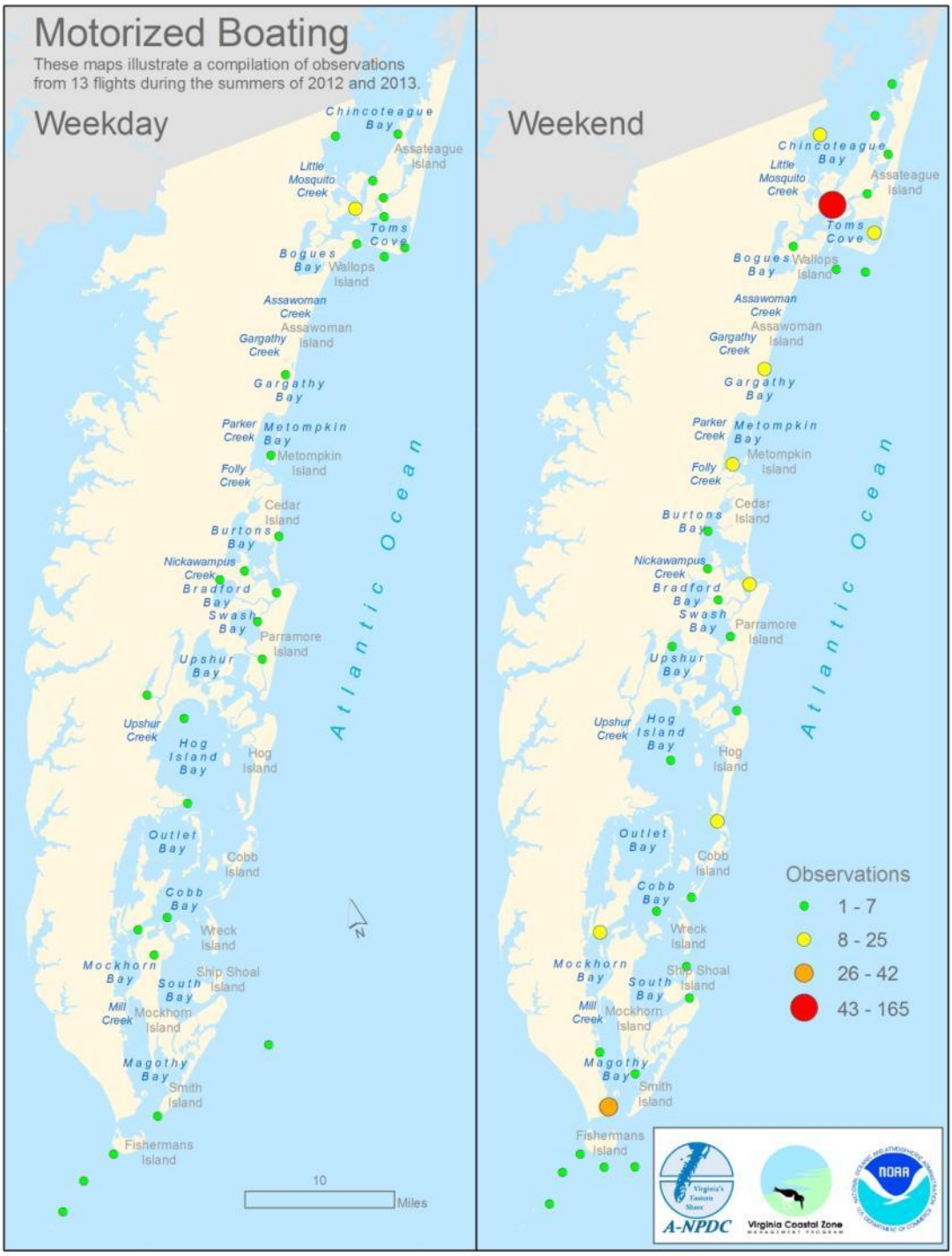


Figure 42 – Maps showing Recreational Shore Fishing observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION



<u>Figure 43</u> – Maps showing Motorized Boating observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION

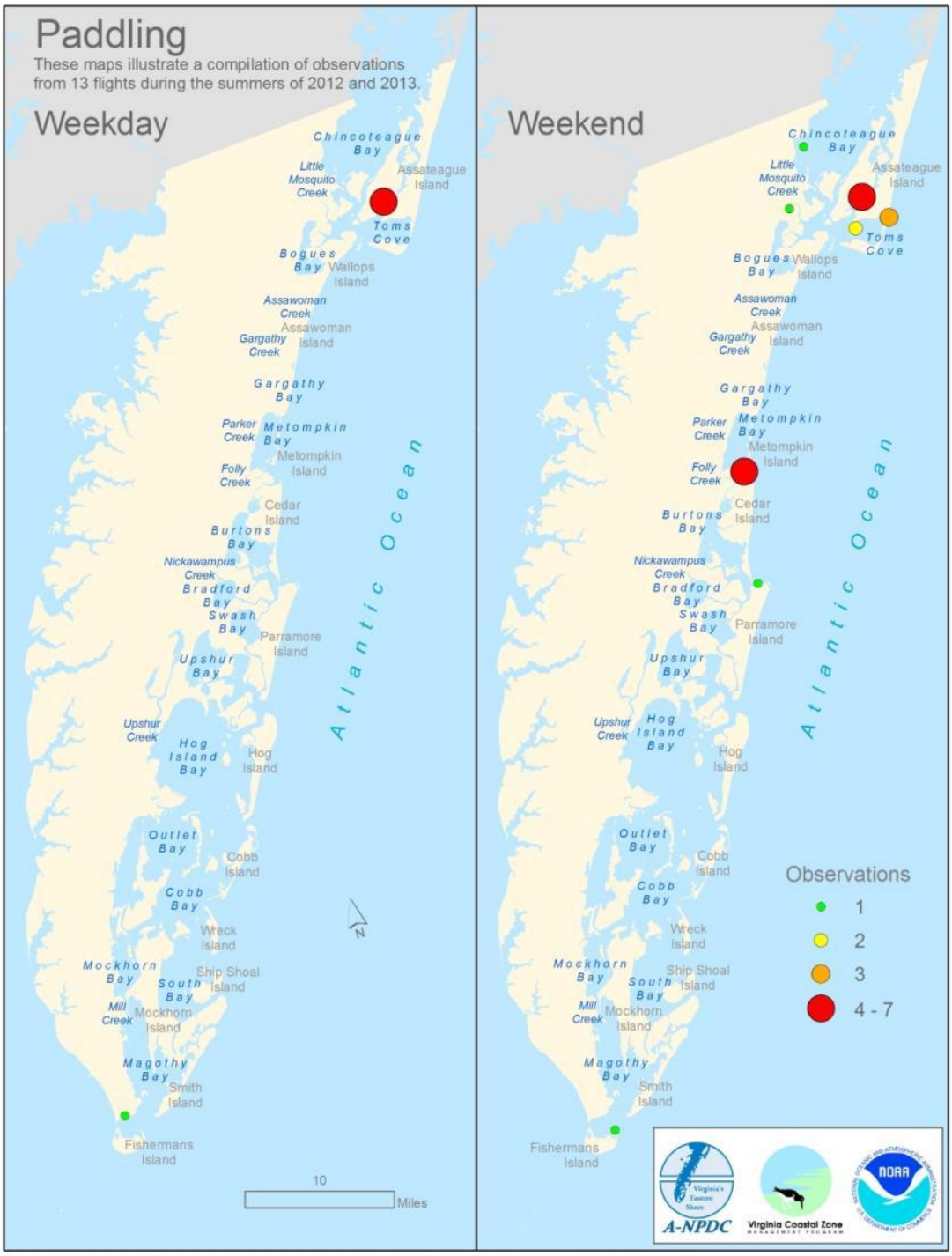


Figure 44 – Maps showing Paddling observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION

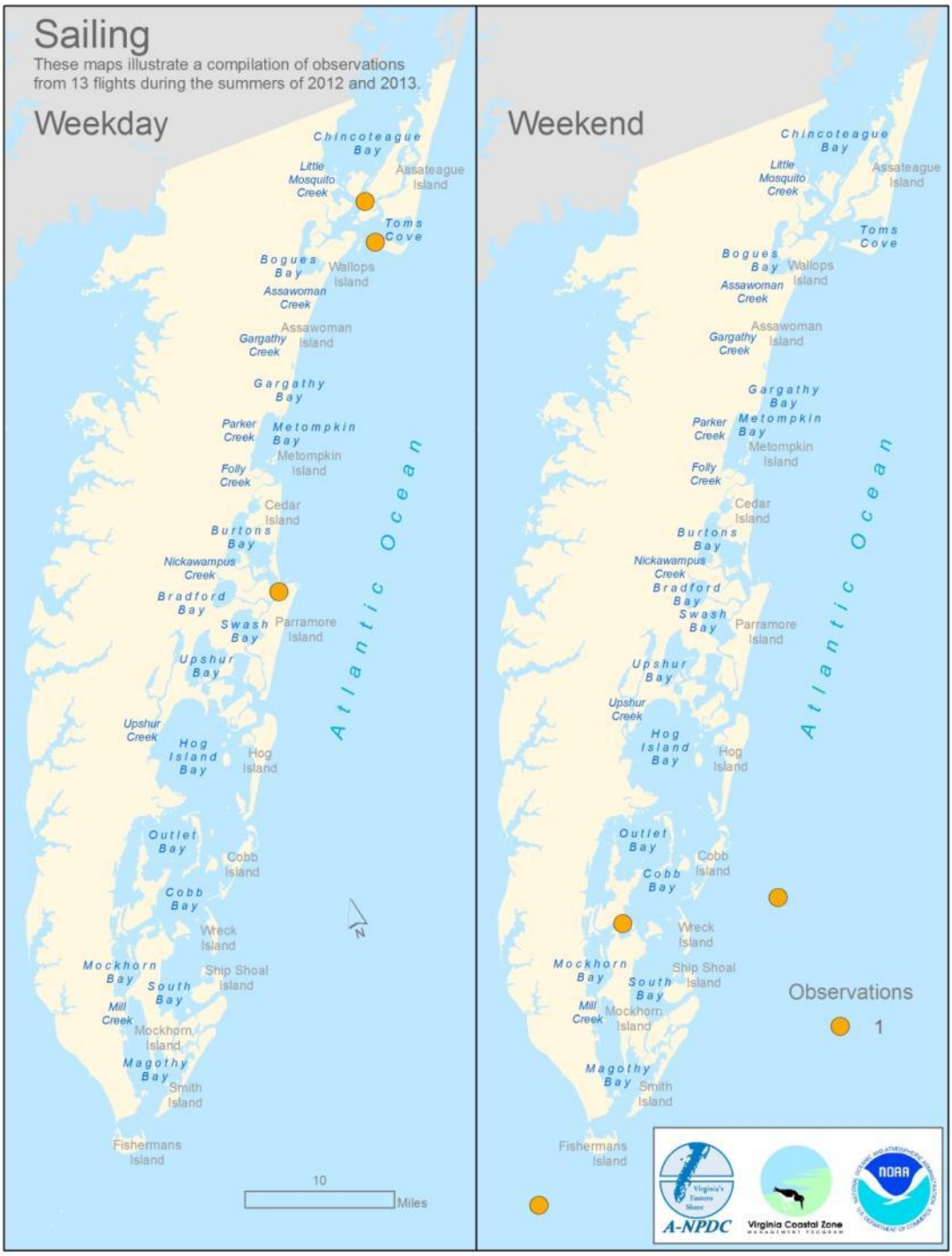


Figure 45 – Maps showing Sailing observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION

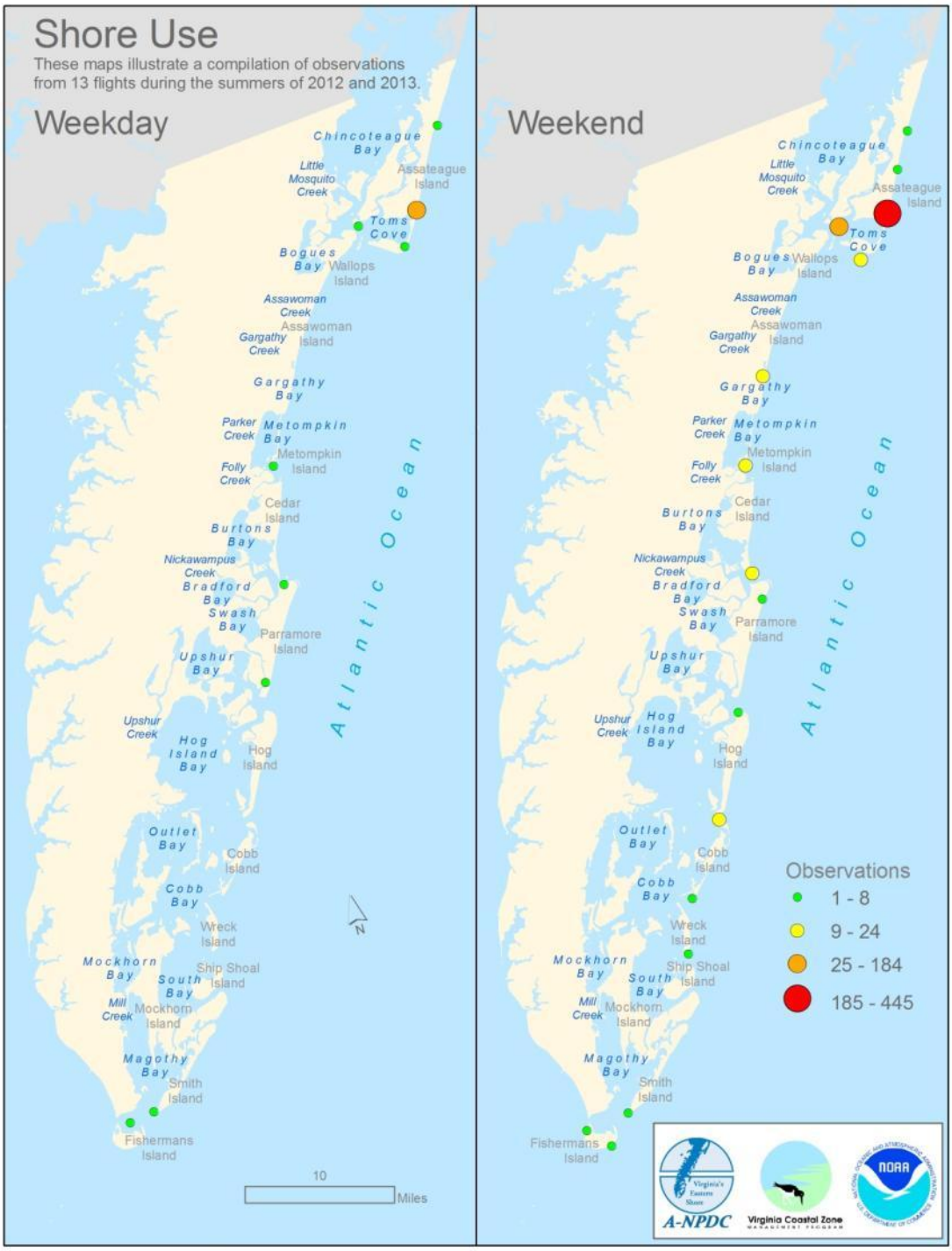


Figure 46 – Maps showing Shore Use observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION

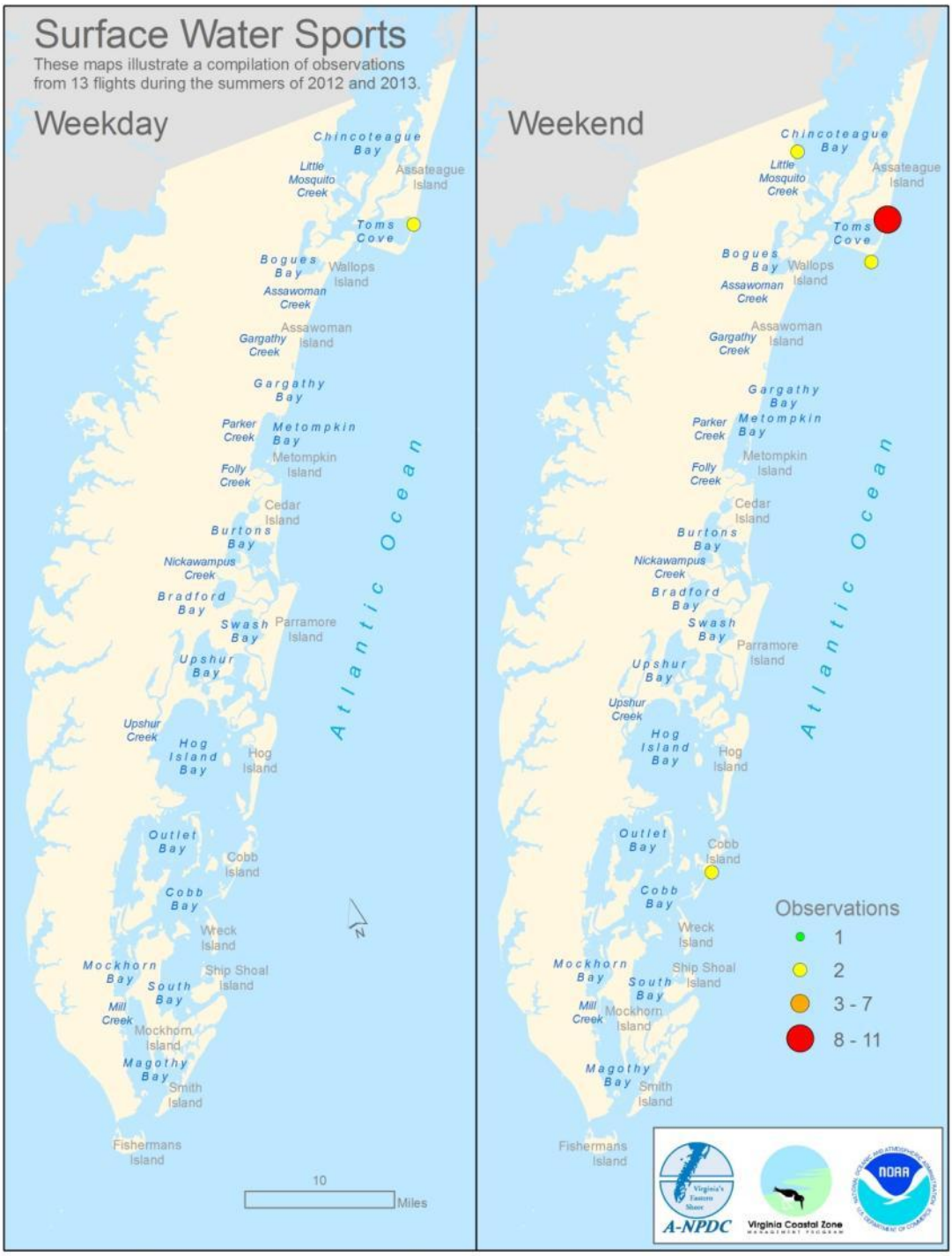


Figure 47 – Maps showing Surface Water Sport observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION

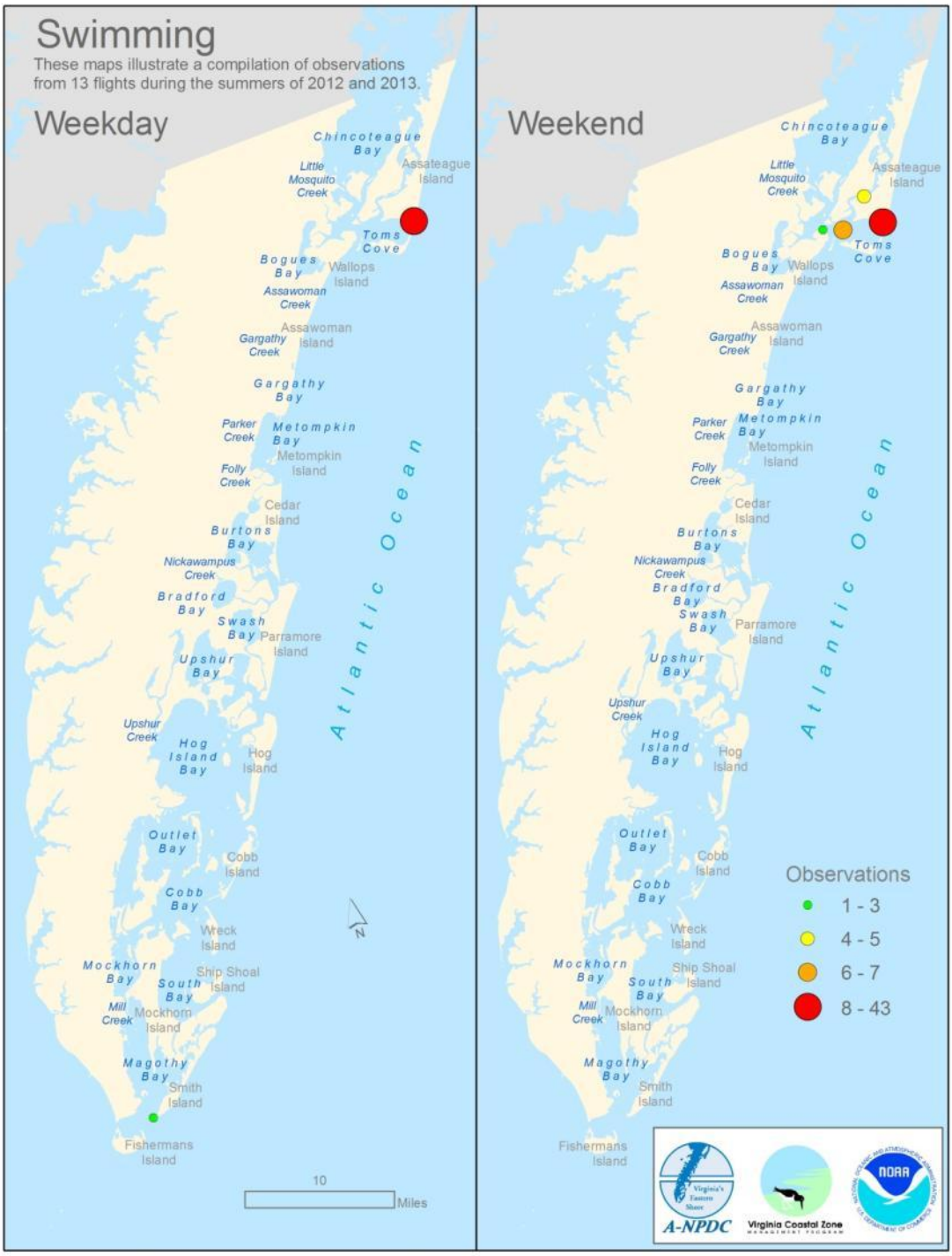


Figure 48 – Maps showing Swimming observations occurring on weekdays and weekends.

3.0 RESULTS & DISCUSSION

Indeterminable Recreational Uses (**Figure 40)** were encountered in relatively greater numbers on weekends as compared to weekdays. The most intense uses occurred in the Chincoteague Inlet/Assateague Island vicinity for both weekdays and weekends. Moderate-use areas were also encountered in more places on the weekends (5) than during weekdays (3).

Recreational Fishing from Motorized Vessels (**Figure 41)** was found to be significantly more intense and widespread during the weekends as compared to weekdays. Weekend use increased sharply at the southern end of the field survey area.

Only 20 observations of Recreational Shore Fishing (**Figures 39 and 42)** were encountered and these basically occurred at the same intensity and at the same locations during the week and during the weekends. The most intense use occurred on Tom's Cove Hook at the southern end of Assateague Island.

Motorized Recreational Boating (**Figure 43**) was observed in similar locations on weekends as compared to weekdays. However, the intensity of this use at these locations increased drastically during weekends. This holds true especially for the Chincoteague Inlet vicinity and to a lesser extent near the other tidal inlets along the barrier islands.

Paddling was only observed on 36 occasions with slightly more occurring during weekends (**Figures 39 and 44)**. The Chincoteague area experienced a significant increase in paddling on the weekends.

Sailing was only observed on 6 occasions making it difficult any use trends for weekday versus weekend (**Figures 39 and 45**).

Shore Use (**Figure 46**) was the most observed recreational use and there was a significant increase in both activity and the number of areas where the use was observed. Specifically, Shore Use was greatest on Assateague Island and Chincoteague Inlet where it increased from minimal/moderate during the week to moderate/heavy during weekends. Minimal Shore Use was observed along several other barrier islands during the week, but this use became more intense and widespread during the weekends.

Surface Water Sports and Swimming (**Figures 39, 47 and 48**) were observed primarily on Assateague Island and in the Chincoteague Inlet/Bay vicinity. Activity was found to increase during weekends.

3.3.2 Recreational Uses by Location & Density

In addition to understanding when recreational uses occur on the Seaside as discussed in **Section 3.3.1**, it is equally important to know exactly where these uses occur. **Figures 49 through 57** illustrate compilations of observations from all aerial surveys during 2012 and 2013. In general, the most active recreational areas observed were in the vicinity of Chincoteague and Assateague Islands and the mouth of the Chesapeake Bay/Fisherman Island vicinity at the southern end of the Delmarva Peninsula. Additional locations that were observed to receive an above average quantity of recreational use included the areas in the vicinity of Gargatha, Metompkin, Wachapreague, Quinby, Machipongo, and Sand Shoal Inlets.

3.0 RESULTS & DISCUSSION

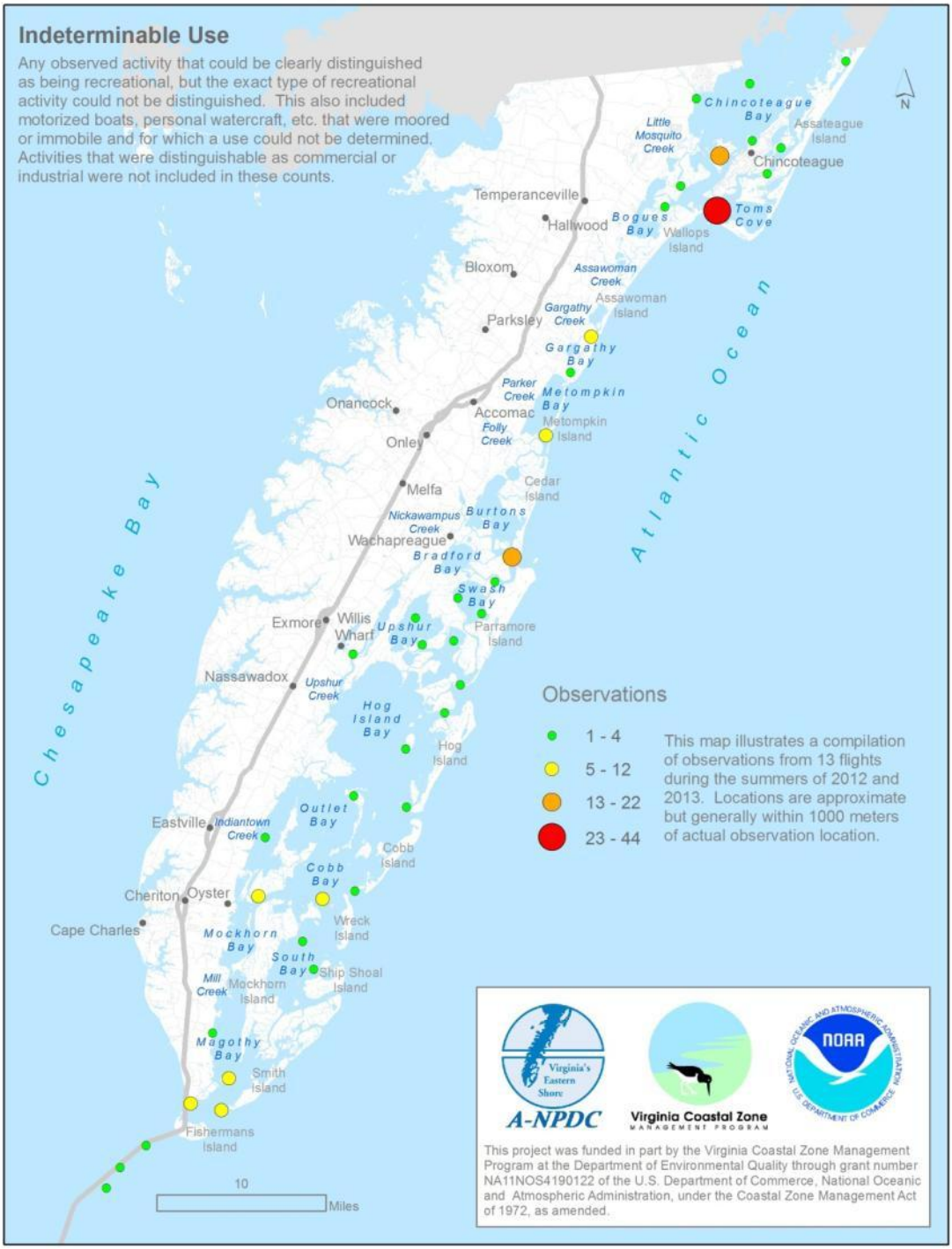
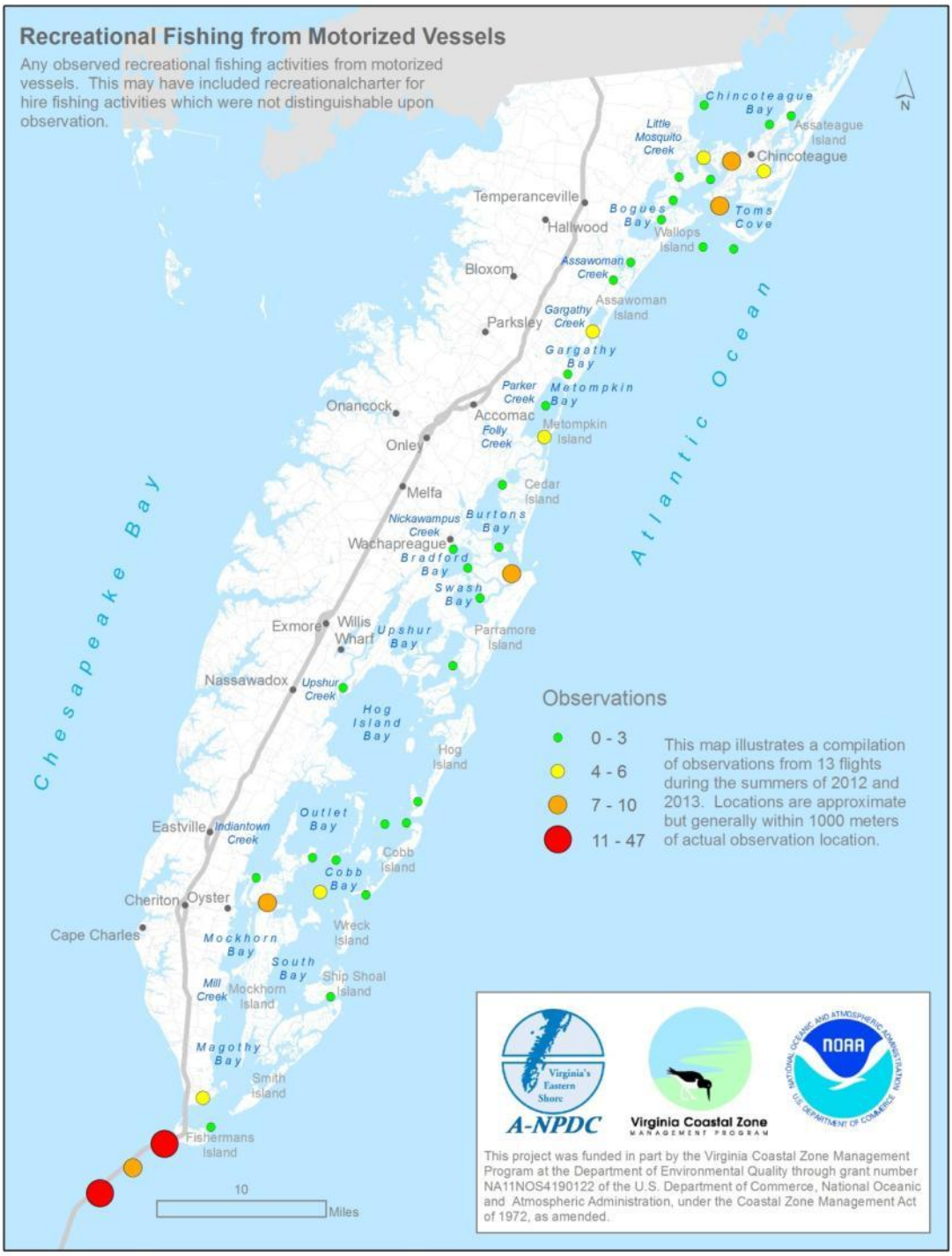


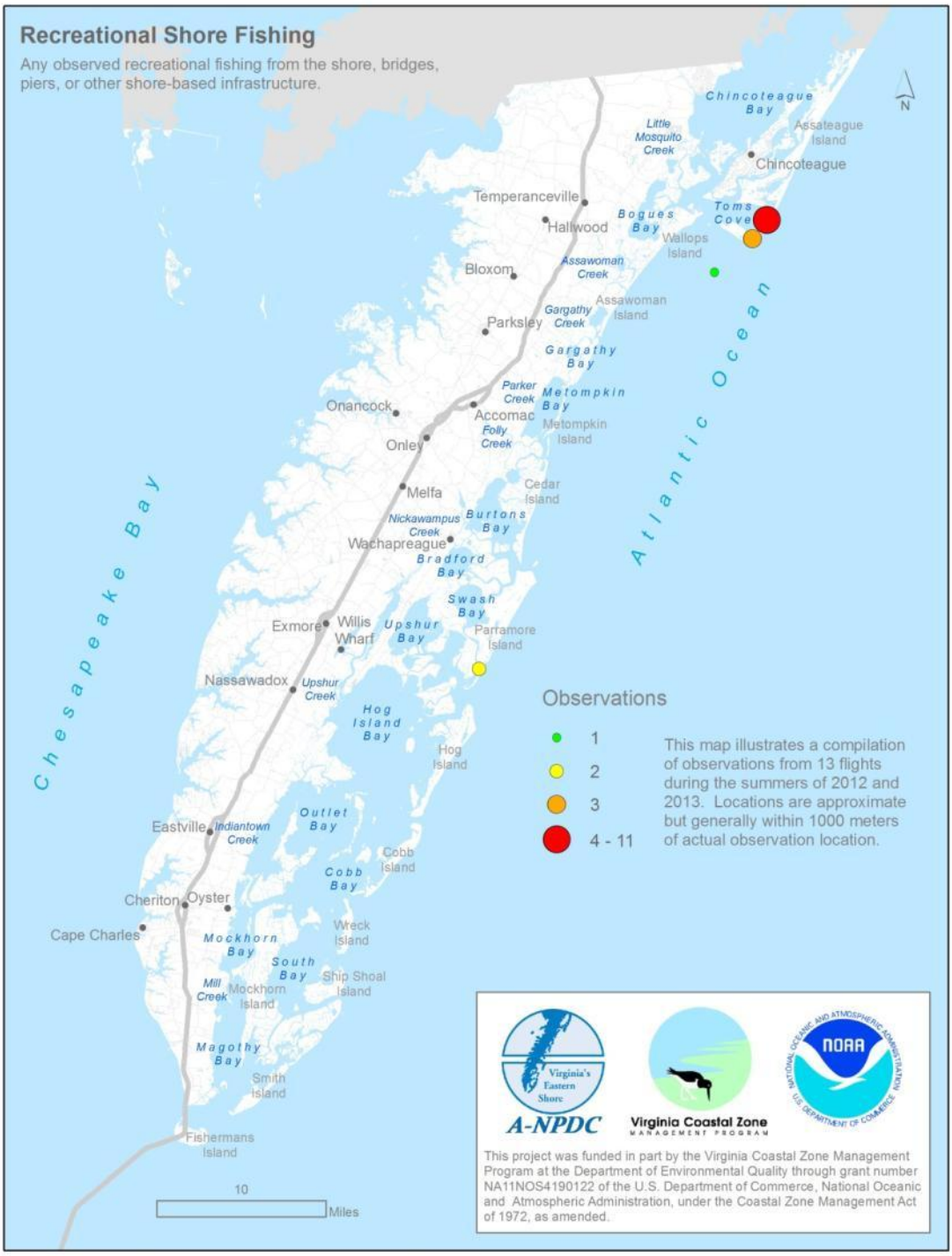
Figure 49 – Map illustrating a compilation of Indeterminable Use observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION



<u>Figure 50</u> – Map illustrating a compilation of Recreational Fishing from Motorized Vessel observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION



<u>Figure 51</u> – Map illustrating a compilation of Recreational Shore Fishing observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION

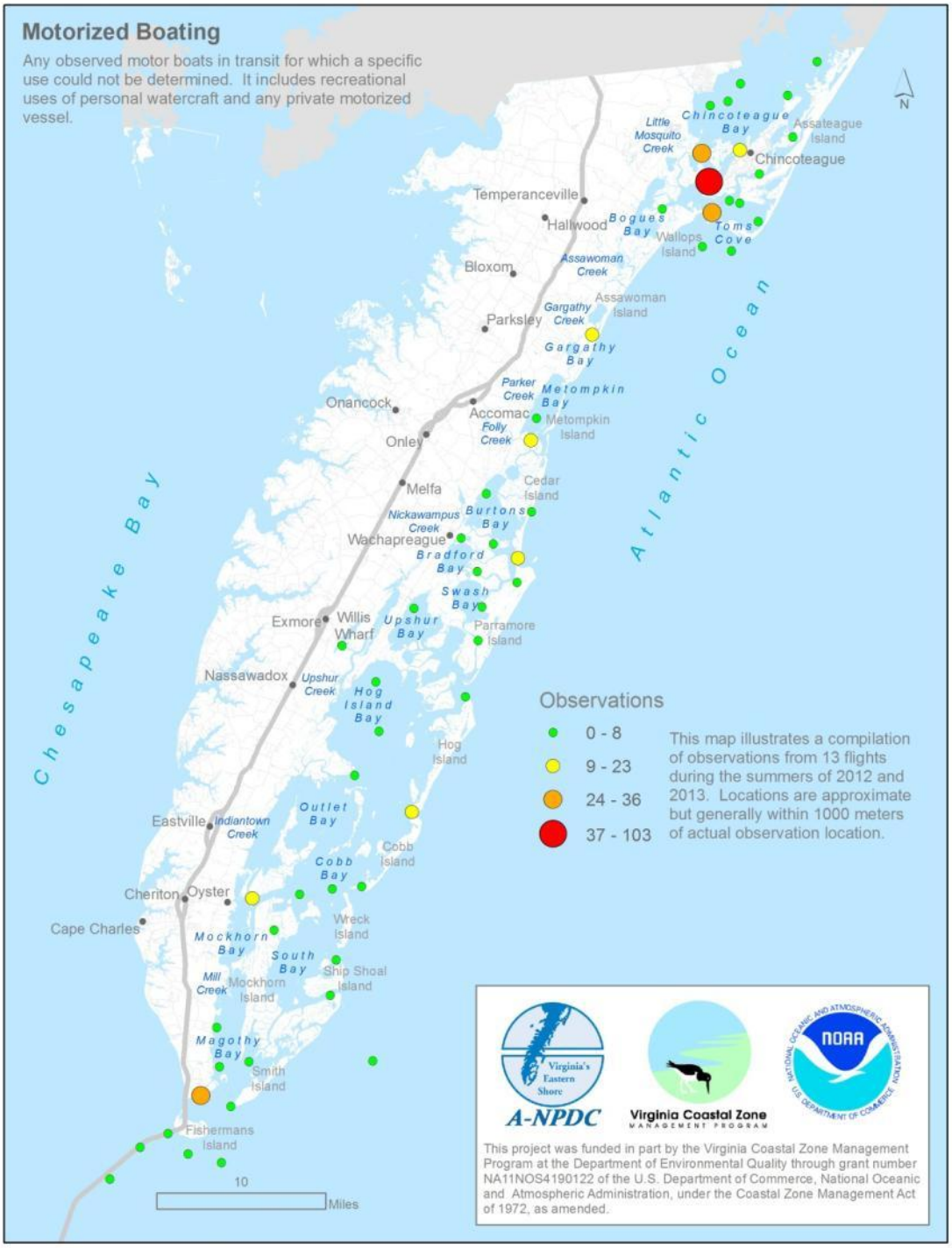
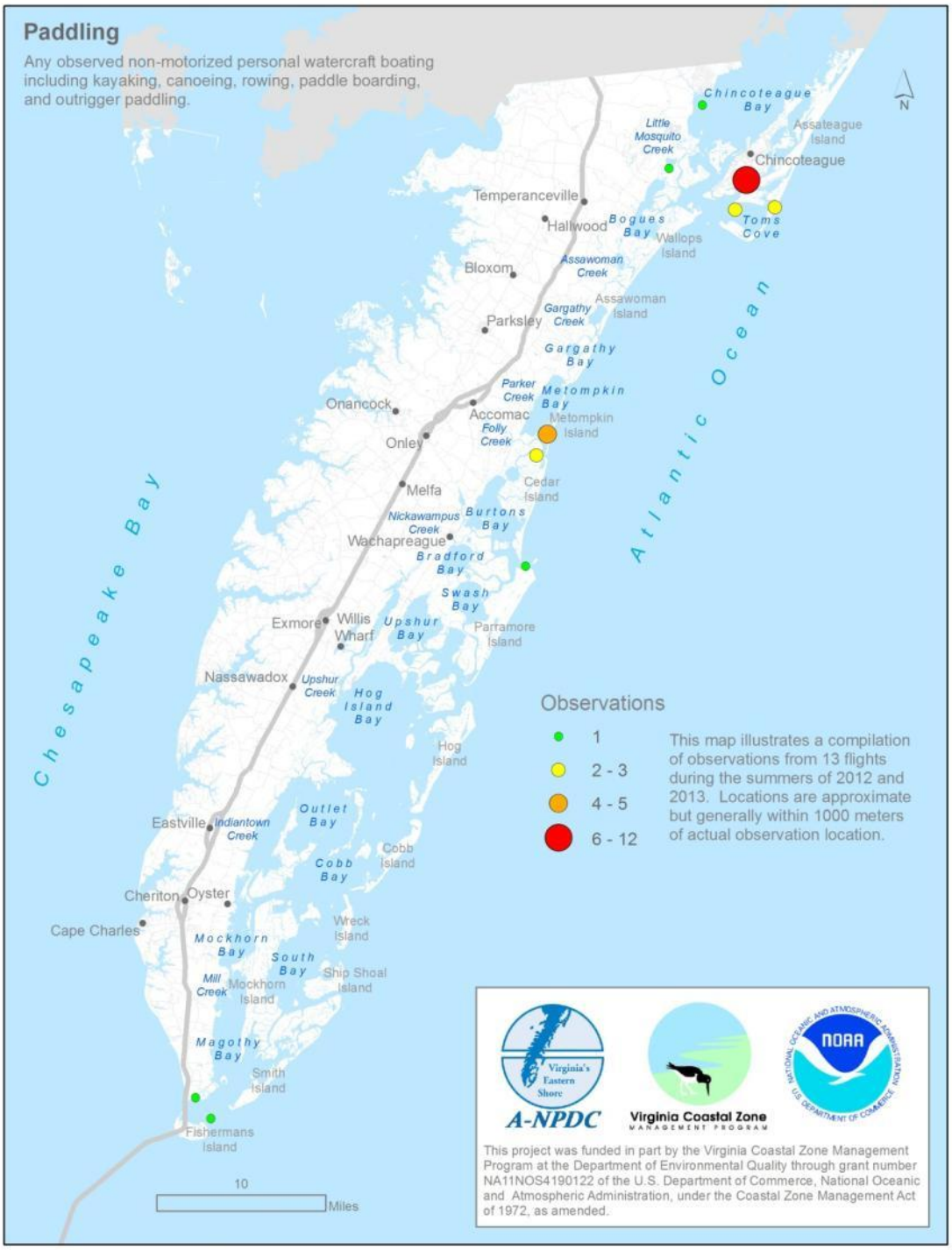


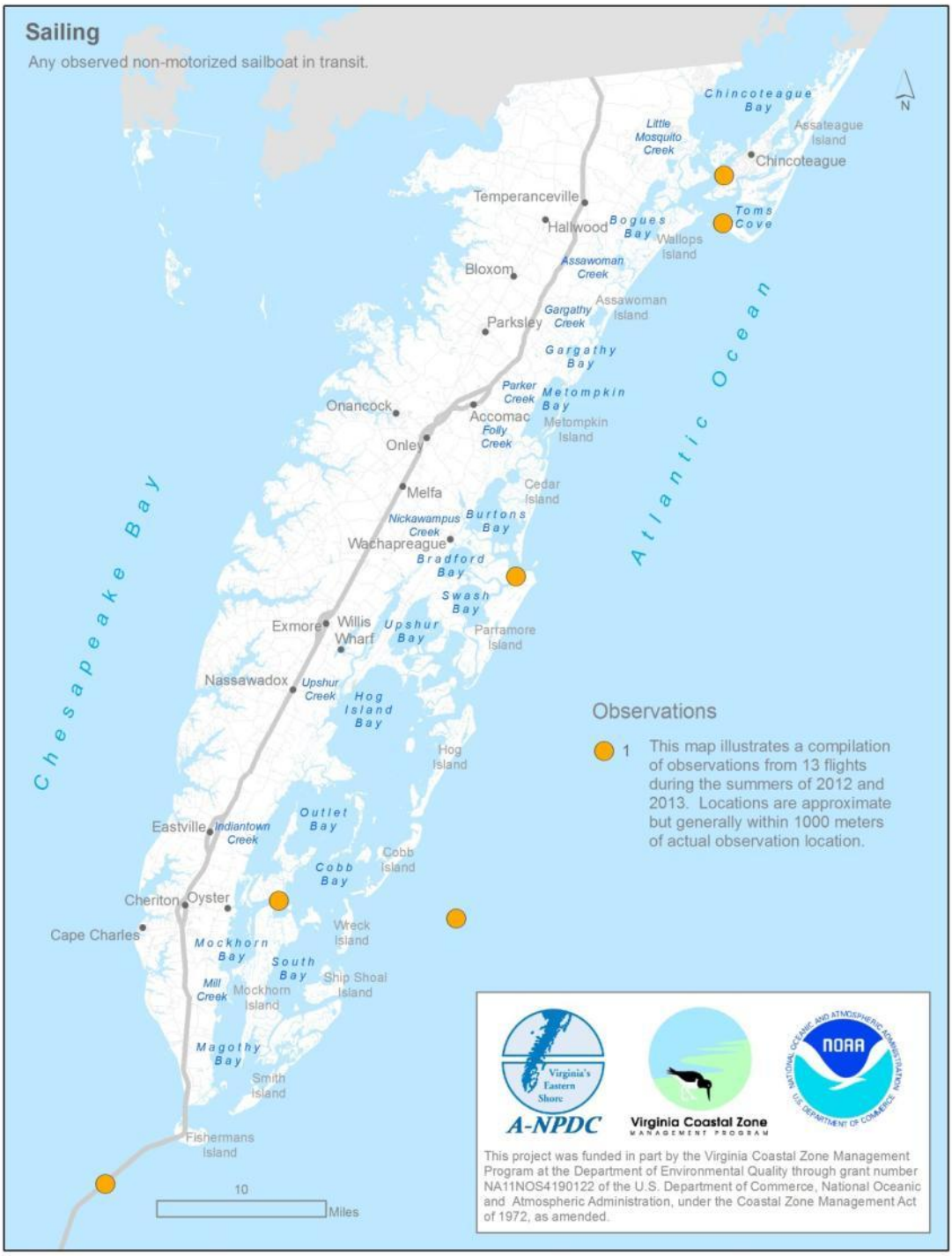
Figure 52 – Map illustrating a compilation of Motorized Boating observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION



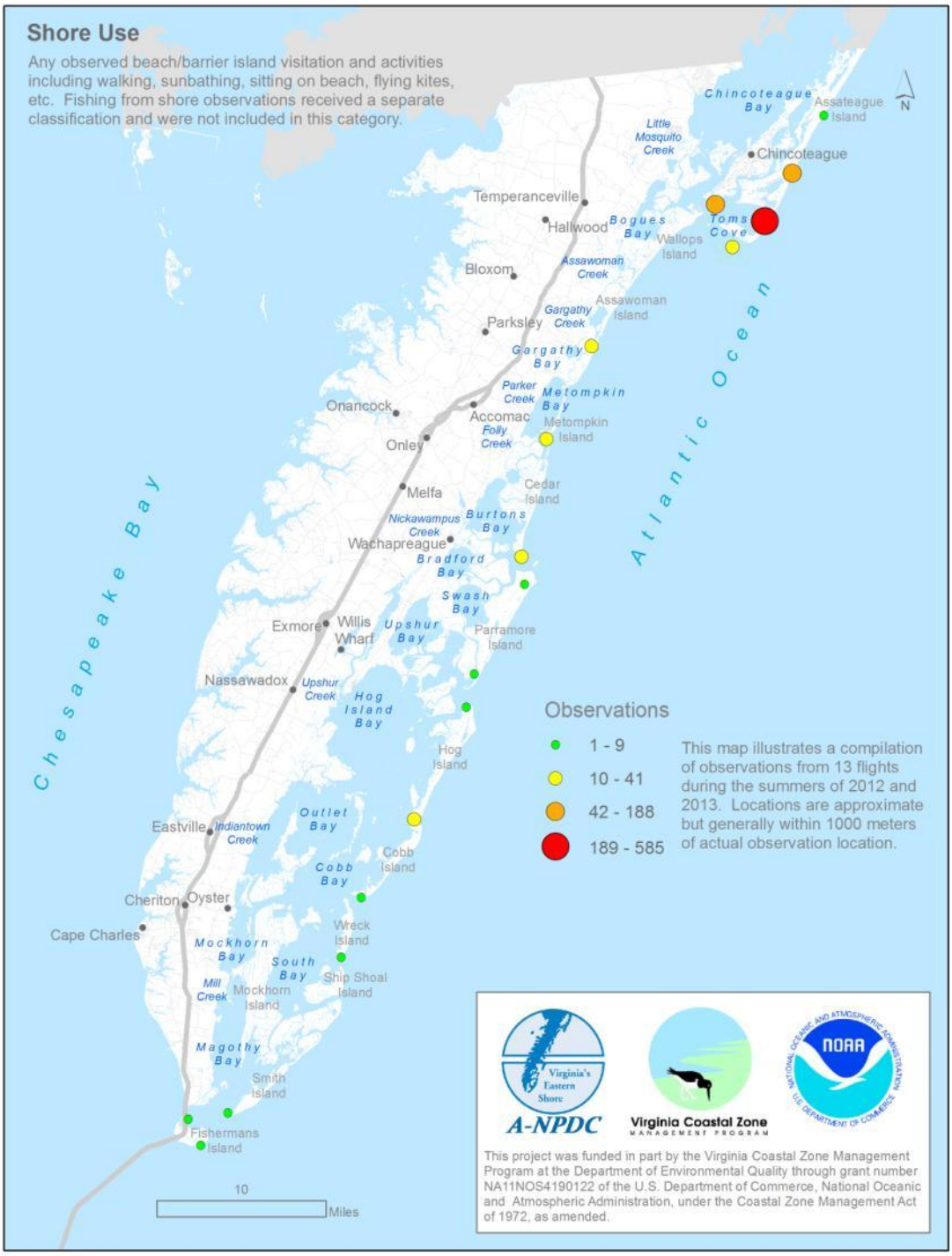
<u>Figure 53</u> – Map illustrating a compilation of Paddling observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION



<u>Figure 54</u> – Map illustrating a compilation of Sailing observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION



<u>Figure 55</u> – Map illustrating a compilation of Shore Use observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION

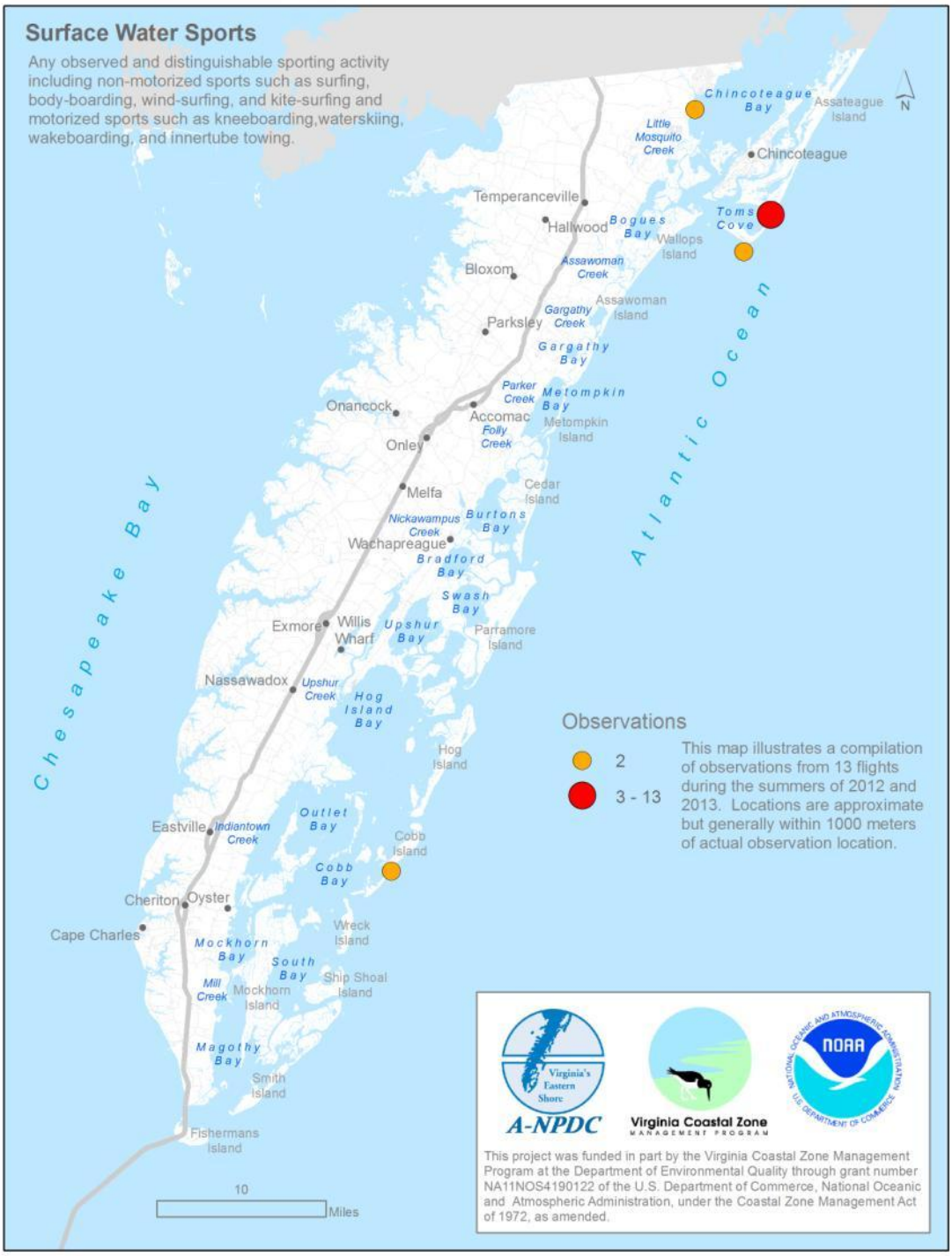


Figure 56 – Map illustrating a compilation of Surface Water Sports observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION

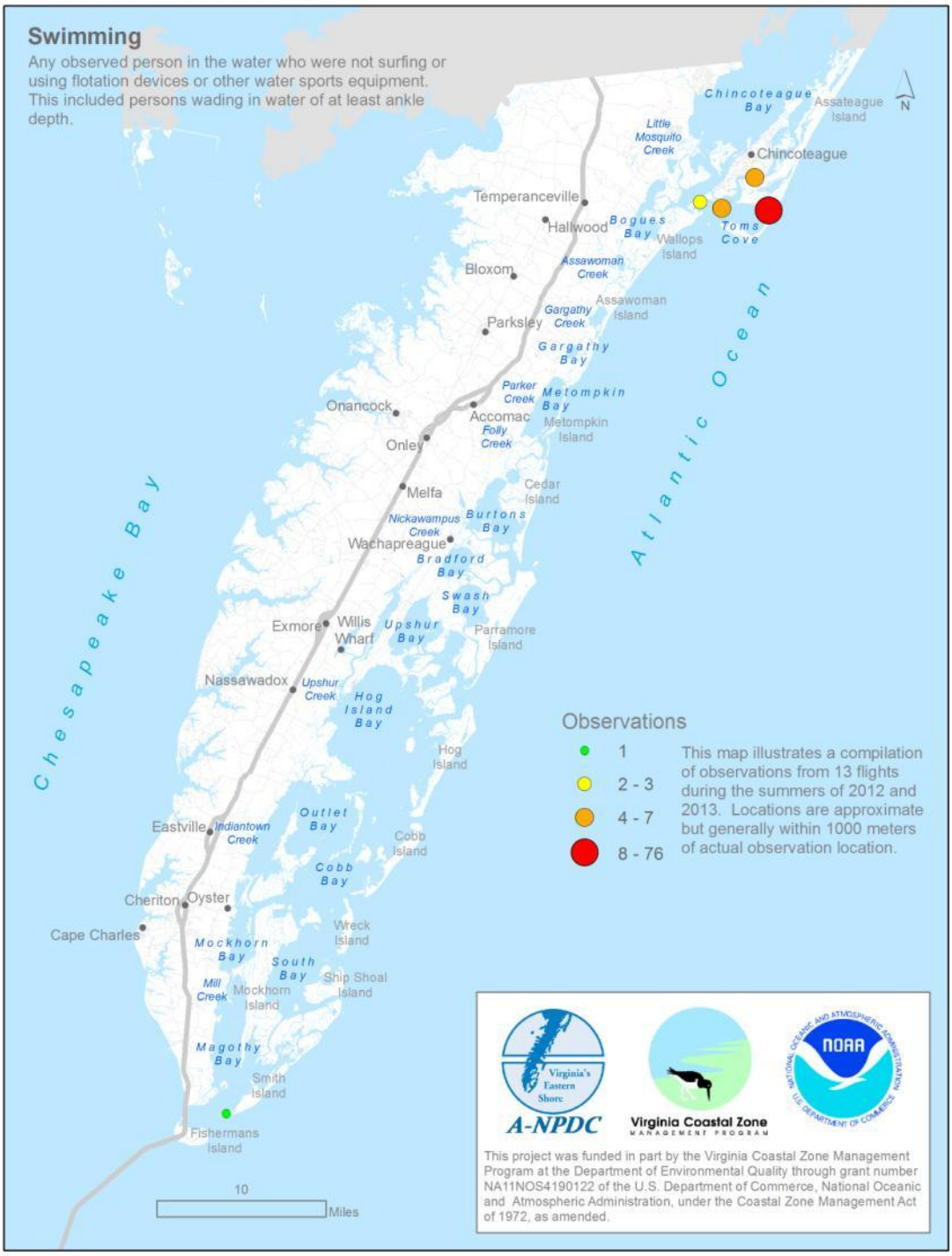


Figure 57 – Map illustrating a compilation of Swimming observations made during aerial surveys in 2012 and 2013.

3.0 RESULTS & DISCUSSION

While the indeterminable recreational uses (**Figure 49)** observed during the 2012 and 2013 aerial surveys do not allow for the discernment of where specific recreational uses are occurring, these observations do shed light on the trend of where general recreational uses occur. The most active area for where these uses were observed was at Chincoteague Inlet with lesser concentrated areas in southern Chincoteague Bay and Wachapreague Inlet. There were relatively more uses observed in Accomack County than Northampton County. These uses were observed in more places across the entire Seaside than any other use.

Recreational Fishing from Motorized Vessels (**Figure 50)** was observed 235 times with the greatest concentration at the mouth of the Chesapeake Bay and adjacent to the Chesapeake Bay Bridge Tunnel. Other areas where concentrated use were observed include the Chincoteague and Assateague Island area, Wachapreague Inlet and around the vicinity of Mockhorn and Cobb Bay. Observations were relatively widespread across the entire Seaside compared to other uses. There is a definite correlation between where this use occurred and the navigability and ease of access of areas on the Seaside. Finally, it is important to note that while most of the observations were of smaller vessels, there were observations of vessels that were larger and may have involved charter (for hire) fishing activities. These different recreational uses were not distinguishable from each other from aerial photography alone.

Recreational Shore Fishing (**Figure 51)** in only 20 instances making it the second least observed use of the survey. Shore fishing was predominantly observed on Tom's Cove Hook at the southern end of Assateague Island

where this area can easily be accessed by off-road vehicles with a permit. Two instances of shore fishing were reported on Parramore Island.

Motorized Recreational Boating (**Figure 52**) was the second most-observed use during the aerial surveys with 531 observations. This use was prevalent across much of the study area with concentrated areas of use observed around Chincoteague including the inlet and southern Chincoteague Bay. Generally, the tidal inlets along the barrier islands received next most concentrated amount of use compared to the Chincoteague area. The most popular tidal inlets for motorized boating included Chincoteague, Gargatha, Metompkin, Wachapreague, Machipongo, and Fishermans. As was found for Recreational Fshing from Motorized Vessels, there was an observed correlation between the use and the navigability and ease of access of where the use was occurred.

Paddling was observed less frequently than the other uses with only 36 observations during the aerial surveys (**Figure 53)**. The Assateague Channel on the eastern side of Chincoteague received the most use. Other areas receiving significant amounts of use included Toms Cove at southern end of Assateague Island and the Folly Creek/Metompkin Inlet area. The only other locations where this use was observed were at Wachapreague Inlet and in the Wise Point/Raccoon Island/Fishermans Island vicinity.

Sailing was only observed on 6 occasions making it the least-observed recreational use during the aerial surveys. There were no discernible trends in where sailing was observed although all uses did occur within waterways with excellent navigability. Sailing was observed at Chincoteague (**Figure 54)**, Chincoteague Inlet, Wachapreague Inlet, in transit from Oyster Harbor, offshore of Cobb Island, and at the Chesapeake Bay Bridge Tunnel.

Recreational shore uses (**Figure 55)** occurred more than any other use with 1,701 counts; however, the uses were extremely confined to specific areas on the barrier islands and occurred in fewer places than most of the other observed recreational uses. The most

concentrated use occurred at the only public access point on the Seaside that is accessible by automobile, the Assateague Island National Seashore. The vast majority of use was observed at or adjacent to the parking lots at the southern end of Assateague Island with relatively fewer uses observed within walking distance to the north and south of the parking lots. The next most significant use was observed at a tidal shoal in Chincoteague Inlet. This location is a popular destination for tourists and locals alike and several businesses on Chincoteague provide transport to this shoal during the summer months. Other barrier islands receiving relatively less but still significant use included the north end of Metompkin Island, the north of Cedar Island, the south end of Cedar Island and Dawson Shoals, the south end of Hog Island, and the north end of Cobb Island. Finally, other locations where shore uses were observed include the north and south ends of Parramore Island, the north end of Hog Island, the south end of Cobb Island, the south end of Wreck Island, the south end of Smith Island, and at two locations on Fishermans Island.

Surface water sports were observed on 60 occasions at four locations on the Seaside (**Figure 56)**. These uses were observed at the greatest concentration near the parking lots at the Assateague Island National Seashore. Other uses were observed at Toms Cove Hook at the south end of Assateague Island, in Chincoteageu Bay near Captains Cove, and at Cobb Island. The vast majority of surface water sport use involved surfing and body boarding at Assateague Island.

Swimming was observed at locations that strongly correlate with Recreational Shore Use and Surface Water Sports (**Figure 57)**. The most intense use was observed near the parking lots at the Assateague Island National Seashore. Swimming was observed to a lesser extent at the tidal shoal in Chincoteague Inlet and in Assateague Channel. One observation occurred at the south end of Smith Island.

4.0 SUMMARY & CONCLUSIONS

The A-NPDC completed a comprehensive assessment of recreational use on the Seaside of Virginia's Eastern Shore. Three datasets including a compilation of existing recreational-use data from various agencies, recreational-use maps from a participatory GIS workshop, and density maps from observations made during aerial surveys were used to assess which of 22 different and specific recreational uses was occurring where on the Seaside.

Literature & Data Search

Only three sources of data for recreational uses were identified within the region. One of the datasets only provided information for one specific landing, another produced a regional assessment but focused on shore uses only, and the other was a compilation of anecdotal accounts of recreational uses in the region. The limited information provided by the literature and data search indicates that the current study was a much-needed step towards comprehensively understanding recreational use trends on the Seaside.

Participatory GIS Workshop

Forty-four stakeholders provided critical information for general and dominant-use trends for 22 various recreational-use types. The participatory GIS workshop resulted in a series of maps which quantified use intensity into the relative-categories, general and dominant, and spatially illustrated where these uses occur. The maps did not provide information on which uses were the most widespread and which uses occur with the greatest intensity. The maps were reviewed and approved by the stakeholders who participated in the workshop as well as others who were unable to attend.

Aerial Surveys

Fourteen aerial surveys were conducted during peak times of recreational use over the barrier island system on the Seaside during 2012 and 2013. The aerial surveys were intended to provide supplemental information that attempted to validate the historic data and the workshop maps. As such, the aerial surveys made observations of the same recreational-use type categories utilized in the workshop. Only eight recreational-use types were encountered during the aerial surveys and an additional category, Indeterminable Recreational Use, was established to quantify uses that could not be distinguished by the survey methodology. The aerial surveys provided critical information that allowed for additional understanding regarding which use-type was most prominent and which areas received the greatest concentrations of people during peak use times. Other information inferred from the aerial survey data included that recreational use was

much greater during the weekends compared to weekdays. In general, the majority of the recreational uses was observed along the barrier islands, at tidal inlets, and within navigable channels within the barrier island system. Use-intensity tended to increase near ports, landings, and other water-access points on the Seaside.

Correlation of Historic Data, Workshop Data, and Aerial Survey Data

The information identified in the literature and data search generally supported the findings from the participatory GIS workshop and aerial surveys. The historic data added nothing but supplemental information for the inshore areas, but did provide additional details on which recreational uses were occurring from Wise Point on the southern end of the peninsula.

The aerial survey data indicated that the most widespread use was Shore-Use. The greatest concentration of Shore Use occurred at Assateague Island, which accounted for nearly 3 times as many observations as any other use observed at any location on the Seaside. Motorized Boating, Swimming, and Recreational Fishing from Motorized Vessels were the next most encountered uses on the Seaside with the greatest concentrations of each generally occurring in the Chincoteague/Assateague vicinity and at the southern end of the peninsula and at the mouth of the Chesapeake Bay. In general, these areas received the greatest concentration of use with secondary locations occurring at Gargatha Inlet, Metompkin Inlet, Wachapreague Inlet, Machipongo Inlet, and Sand Shoal Inlet.

For the vast majority of recreational uses observed during the aerial surveys, they closely correlated with the dominant and general use spatial trends in the workshop maps. Only in one instance did the aerial survey observations not correlate with the workshop maps. The workshop maps did not illustrate the Folly Creek/Metompkin Inlet vicinity as a dominant-use area, but the aerial survey observations indicated that this was indeed one of the most-intensely used areas on the Seaside.

Figure 58 summarizes the general and dominant recreational use trends identified from historic datasets, the 2012 participatory GIS workshop, and 2012-2013 aerial surveys.

4.0 SUMMARY & CONCLUSIONS

Recreational Use	General Use Areas	Dominant Use Areas	Data Sources		
			Historic Data	pGIS Workshop	Aerial Surveys
Charter Fishing – Small Vessel	*Inshore*: creeks, lagoons, inlets; *Offshore*: islands to shelf break	*Inshore*: creeks, lagoons, inlets; *Offshore*: wrecks, bottom topography, shelf break		✓	
Charter Fishing – Large Vessel	*Inshore*: creeks, lagoons, inlets; *Offshore*: islands to shelf break	*Inshore*: mouth of Chesapeake Bay & southern tip		✓	
Charter Diving/Snorkeling	*Inshore*: southern tip; *Offshore*: 3 nm to 150 ft depth	*Offshore*: wrecks and adjacent areas <30 fathom depth		✓	
Charter Party Cruises	*Inshore*: creeks, lagoons, inlets; *Offshore*: state waters	*Inshore*: Chincoteague vicinity		✓	
Charter Wildlife Viewing	*Offshore*: islands to shelf break	*Inshore*: creeks, lagoons, inlets		✓	
Charter Scenic Viewing	*Inshore*: creeks, lagoons, inlets; *Offshore*: island to 5 miles east of state waters	*Inshore*: Chincoteague vicinity, Wachapreague channel, Quinby/Willis Wharf area, Hog Island, Oyster to Cobb Island		✓	
Charter Transport	*Inshore*: Chincoteague Bay, Gargatha landing to inlet, Quinby harbor to inlet;	*Inshore*: Chincoteague Inlet; *Offshore*: Chincoteague Inlet to vicinity 5 miles out to the east		✓	
Recreational Kayak & Non-Motorized Vessel Fishing	*Inshore*: creeks, lagoons, inlets; *Offshore*: state waters	*Inshore*: Chincoteague Inlet vicinity, Fishermans Inlet vicinity		✓	

4.0 SUMMARY & CONCLUSIONS

Recreational Use	General Use Areas	Dominant Use Areas	Data Sources		
			Historic Data	pGIS Workshop	Aerial Surveys
Recreational Dive Fishing	*Inshore*: Fishermans Island vicinity; *Offshore*: mouth of Chesapeake Bay, wrecks <30 fathom depths	*Inshore*: Chesapeake Bay Bridge Tunnel; *Offshore*: cluster of wrecks approx. 30 miles from mouth of Chesapeake Bay		✓	
Recreational Fishing from Motorized Vessels	Entire Study Area	*Inshore*: creeks, lagoons, inlets; *Offshore*: islands to 30 miles, near wrecks & canyons	✓	✓	✓
Recreational Shore Fishing	Within 100 yards from all shorelines and piers	Islands: Assateague, Chincoteague, Wallops, Metompkin, Cedar, Dawson Shoals, Parramore, Hog, Cobb, Wreck, Ship Shoal, Myrtle, Smith Other: Chincoteague Causeway		✓	✓
Recreational Shellfish Harvesting	*Inshore*: very limited areas near some inlets	*Inshore*: interior areas <4 ft depth		✓	
Recreational Waterfowl Hunting	*Offshore*: half-mile east of islands	*Inshore*: interior areas during open season		✓	
Motorized Boating	*Offshore*: 2 miles east of islands to 15 miles east of islands	*Inshore*: interior areas from spring to fall	✓	✓	✓
Paddling	*Inshore*: creeks, lagoons, inlets, Chesapeake Bay Bridge Tunnel; *Offshore*: islands to 1 miles	*Inshore*: along Seaside Water Trail, Chincoteague/Assateague vicinity, Folly Creek to Metompkin Inlet vicinity, Wise Point	✓	✓	✓

4.0 SUMMARY & CONCLUSIONS

Recreational Use	General Use Areas	Dominant Use Areas	Data Sources		
			Historic Data	pGIS Workshop	Aerial Surveys
Sailing	*Inshore*: navigable waterways & inlets, Chesapeake Bay Bridge Tunnel; *Offshore*: islands east to EEZ	None		✓	✓
Scuba/Snorkeling/Diving	*Inshore*: mouth of Chesapeake Bay; *Offshore*: wrecks and adjacent areas <30 fathom depth	*Inshore*: Chesapeake Bay Bridge Tunnel; *Offshore*: cluster of wrecks approx. 30 miles from mouth of Chesapeake Bay		✓	
Shore Use	Within 100 yards from all shorelines and piers	Islands: Assateague, Wallops, Metompkin, Cedar, Dawson Shoals, Parramore, Hog, Cobb, Wreck, Smith	✓	✓	✓
Surface Water Sports	*Inshore*: various creeks, lagoons, inlets & mouth of Chesapeake Bay; *Offshore*: to 1 mile east of islands	*Inshore*: Assateague Island		✓	✓
Swimming	*Inshore*: Within 100 yards from all shorelines and piers & Chincoteague, Folly Creek, Wachapreague, Red Bank, Oyster	Islands: south Assateague, north Metompkin, north & south Cedar, Dawson Shoals, south Cobb, north Wreck, south Smith		✓	✓

Figure 58 – Table summarizing general and dominant recreational uses identified from historic datasets, the 2012 participatory GIS workshop, and 2012-2013 aerial surveys.

APPENDICES

Appendix A

Participatory GIS Workshop Invitation Flyer & Sign-in Sheets

Virginia's Atlantic Coast Recreational Use Mapping Project

How Do You Recreate on Virginia's Atlantic Coast and Seaside Bays of the Eastern Shore?

We'd like to know how, when and where you and others use these areas. We need your help to better understand which areas are important to your recreational activities so that they can be mapped and basic data can be added to an online portal that lets you view ocean resources and human uses in the Mid-Atlantic Ocean (www.midatlanticocean.org).

As a member of the Mid-Atlantic Regional Council on the Ocean (MARCO), Virginia, through its Coastal Zone Management (CZM) Program is collecting information on how the public uses the Atlantic coast of Virginia. These baseline data will inform planning efforts being undertaken by Virginia CZM to help develop a Virginia Ocean Plan and to help Virginia CZM and the Accomack-Northampton Planning District Commission (A-NPDC) to develop the Seaside Special Area Management Plan. Collecting data on the variety of ways you use the Seaside Bays and Atlantic Ocean will help us plan for reducing use conflicts in our coastal waters, maximizing efficiency, and enhancing environmental and economic productivity.

State and federally managed waters of Virginia and the U.S. are used in many ways: commercial fishing, aquaculture, shipping, military exercises, sand mining, habitat for wildlife, and recreation.

With new and expanding coastal and ocean uses emerging such as energy production and increased shipping and considering Virginia's coastal population is increasing (from 3.6 million in 1986 to 5.1 million in 2010), the pressure is mounting to ensure that there is space for both traditional and new uses and that conflicts are minimized.

Some mapped human use data exist, but Virginia currently has no recreational water use data for its Atlantic coast and Seaside Eastern Shore Bays. So basic data on how we use our coastal waters will be collected in a number of ways, including: inviting residents to share their knowledge about recreational uses at workshops using geographical information systems technology and using aerial photography to document uses at busy times.

What: Mapping Virginia's Atlantic Coast Recreational Uses Workshop

When: July 11 & 12, 2012
Participants will attend on just one day (8:30am – 4pm) & can choose which day they prefer. Lunch Will Be Provided

Where: Eastern Shore Community College, Melfa, VA

Who: Recreational & Charter Fishermen; Boaters; Paddlers; Life Guards; Surfers; Divers; Wildlife Enthusiasts; Ecotourism Business Owners; Local, State, & Federal Government Representatives; Non-profit Organizations; Local Citizens

Why: To compile recreational use information for ocean planning efforts to reduce marine-use conflicts, maximize use efficiency, and enhance environmental & economic productivity

RSVP TO: (jsmith@a-npdc.org or 757.787.2936)

Virginia's Atlantic Coast Recreational Use Mapping Project

Participatory GIS Workshop

Participants in this workshop will use computers and "e-beam" technology to map coastal and ocean recreational activities – the first time this approach has been used in Virginia. But don't worry – no computer experience is necessary. Participants will be invited to attend for a full day – on either July 11, 2012 or July 12th – and to join a group of 5-10 other stakeholders to discuss and share their knowledge of different recreational uses (i.e. recreational and charter fishing, kayaking, boating, surfing, barrier island day use, etc.). Additional opportunities for stakeholders to share recreational use information may be offered as resources allow and to expand participation from the Virginia Beach area.

Participants will draw on digital maps projected onto a wall using a stylus that emits signals to an adjacent reader which immediately adds the shape they draw to the map. This innovative method quickly and efficiently allows users to share their thoughts, compare notes and learn from others in the group. The data and maps created will be shared with participants for their confirmation and approval before being shared publicly.

Why Participate?

The coast of Virginia is getting busier every day. There is a great deal of interest in developing offshore energy from wind, oil and gas. More and more ships are using the waterways. Residents continue to boat and fish. And all these uses will likely increase. This workshop provides an excellent opportunity to provide accurate information about how people are already using these areas and how they might want to use them in the future. As different government agencies start planning for how we could use these coastal and ocean waters, it's fundamental they begin with an understanding of how the waters are already being used. Making information on recreational uses available to governmental agencies will help ensure access for recreational activities into the future.

Recreational Use Categories To Be Mapped:

- **Boating for Hire (Charter) Uses**
  - Charter trips for fishing, diving & snorkeling, party cruises, wildlife & scenic viewing, & transport
- **Recreational Fishing Uses**
  - From motorized vessels, from kayak & non-motorized vessels, dive fishing, from the shore
- **General Recreational Uses**
  - Motorized boating, paddling, sailing, scuba/snorkel/diving, shore use, water sports, swimming

Reserve Your Spot Today!

RSVP To:

Curt Smith, A-NPDC
757-787-2936 x114
csmith@a-npdc.org

For more info contact:

Laura McKay, VCZM
804-698-4323
Laura.McKay@deq.virginia.gov

Curt Smith, A-NPDC
(Contact info above)

Todd Janeski, VCU
804-828-2858
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Virginia Coastal Zone Management Program

A-NPDC

VCU

Virginia's Eastern Shore
A-NPDC

Virginia Coastal Zone
MANAGEMENT PROGRAM

NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

VIRGINIA'S ATLANTIC COAST RECREATIONAL USE MAPPING WORKSHOP
July 11, 2012

Name	AFFILIATION
[illegible]	CICA.
BOB ALLEN	VCAC
Captain Walt	CICA + LIGHT TACKLE CHARTERS INC.
[illegible]	USCG
[illegible]	TNC
JOHN BOGNAR	RUTGERS UNIVERSITY
Emmett Grawan	US NAVY
DANIEL JORDAN	KIPTOPEKE STATE PARK
Forrest Gladden	Kiptopeke State Park
Andy Durrton	VA Marine Police
NEIL AYDELOTTE	USCG STA WACHAPREAGUE
Anne Armstrong	Marine Science Consortium
Wes Bickford	NJ Coastal Management
Kevin Hasse	NJ Coastal Management
Pete Smith	Northampton County
SHANE WHEATON	NASA
Tom Brockenbrough	Accomack County
Curt Smith	A-NPDC
ALEX WILKE	TNC
Barry Truitt	TNC
Chris Turner	USACE

A-NPDC

Virginia Coastal Zone
MANAGEMENT PROGRAM

VIRGINIA'S ATLANTIC COAST RECREATIONAL USE MAPPING WORKSHOP
July 11, 2012

Name	AFFILIATION
Ruth Boettcher	VDGIF
Brian Moyer	VDGIF
Stanger	Corps
Jay Odell	TNC
Gwynn Crichton	TNC
Wayne Merritt	Town of Chincoteague
Bill Neville	"
Louis Gillingham	VA MAR Res.
Marcia Berman	VIMS
Susanna Ulsick	VIMS
Allen Marshall	VMRC
David Burden	SEE

APPENDICES

Virginia's Eastern Shore
A-NPDC

Virginia Coastal Zone
MANAGEMENT PROGRAM

NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

VIRGINIA'S ATLANTIC COAST RECREATIONAL USE MAPPING WORKSHOP
July 12, 2012

Name	AFFILIATION
Curt Smith	A-NPDC
Jim Jenrette	Charter Captain
Neil Lima	NPS
LARRY ATKINSON	DPW
Gwen Lockhart	Virginia Aquarium
RUSSELL VREELAND	ESV ANGLERS
Hank Badger	VMRC
Bob Leffel	USFWS
DAN BILICKI	Wachapreague
David Thornes	CBBT Police/Lt Charters
ANNIE SMITH	VIMS
ART SCHWARTZCHILD	UVA VCR-LTER
CHRIS KENNEDY	CITY VB P&R
Dot Field	DCR-Natural Heritage

Appendix B

Participatory GIS Workshop Facilitator Notes for Mapped Uses

APPENDICES

Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Charter fishing – small vessel	The groups agreed that the general use footprint reached from shore out to the shelf break and slightly beyond. The dominant areas represent state waters, wrecks, other fishing grounds, the offshore canyons, and the entire shelf break area (100 – 500 fathoms).	There are many notes regarding species, pelagic vs. non-pelagic, specific grounds and depths, and seasonality.	The general use footprint is very clear, although only 1 group extended it a little farther (~15 miles) beyond the actual shelf break than the others. The dominant use areas are pretty consistent although some groups drew large circles and others drew smaller areas or said to use the wrecks. As a result there are some small gaps in the south central part of the drawn area.	Confirm that charter operators would go ~15 miles beyond the shelf break for the general footprint. Create maps where the wreck / fishing ground names are labeled and share with charter operators to make sure these are the right spots for dominant use; might be easier in a live review setting due to the complexity of the use and the many data layers that influence the pattern (bathymetry, fishing grounds, wrecks, seasonality, etc.)
Charter fishing – large vessel	The data from this use did not require much editing beyond cleaning basic drawing errors.	There are notes on species, pelagic vs. non-pelagic, and the difference between with 6-packs and head boats.	The groups had less knowledge about head boat activity than 6-packs, and some of the groups either did not know beyond the CBBT or Virginia Beach area or said that it only happened in the southern part of the study area. The dominant use areas only cover the CBBT area and the light tower wrecks. 2 groups did draw dominant areas in the north and offshore (shelf break) but they did not overlap so the resulting threshold data has only the areas closest to Virginia Beach.	Create a review map showing the number of groups that drew a block as dominant so that charter operators can see the offshore and northern areas that dropped out during thresholding. It might end up being true that head boats are dominantly staying close to the population centers as some groups suggested.

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Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Charter diving / snorkeling	One group said to create a footprint from 3nm to 150 ft depth; another said it was the same as rec dive fishing (buffer the angler wrecks). The other two groups had limited information and only drew a couple of spots that they knew.	Not many notes. "Likely" that there is diving on every wreck out there but charter operators were not present to confirm. There is a tighter time frame for this (Spring-Summer) than Recreational SCUBA	General footprint may be overly generous. It was not clear based on the notes if the red group meant all of the area b/t 3nm and 150 feet or just the wrecks w/in that range. The dominant use areas seem to make sense although the areas drawn around the wreck clusters may be overly generous.	Confirm with charter operators the footprint is correct or that it is incorrect (they only visit the wrecks). Create a map that has wreck names labeled and share with charter operators to make sure these are the right spots for dominant use. Gwen Lockhart at the Virginia Aquarium has contact information for someone who could verify this use; Glockhart@virginiaaquarium.com 757-385-7575
Charter wildlife viewing	Most of the data processing was "cleaning" the drawn shapes. One group said to copy the Eastern Shores shapes from Charter scenic viewing.	There are a lot of notes on species, seasonality, and tide dependencies. There is a seasonal shift from dolphin viewing in summer to whale viewing in the winter. The Eastern Shores area is mostly concentrated on bird viewing.	None.	Confirm maps with charter operators. There was a suggestion in one group that the Aquarium viewing trips were not represented; contact Aquarium.

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Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Charter scenic viewing	Most of the data processing was "cleaning" the drawn shapes and clipping as instructed. 2 groups had copied shapes from wildlife viewing (but not the offshore whale watching areas).	There is overlap w/ wildlife viewing in the Eastern Shores and the Party Cruise in Virginia Beach. Most of the activity occurs from spring to late fall. Fall colors and lighthouses are among the attractions.	None	Confirm maps with charter operators
Charter party cruises	Most of the data processing was "cleaning" the drawn shapes and clipping some specific spots. One group said to copy scenic viewing.	Limited notes. The dominant, known areas are a "booze cruise" from Rudee to Lynnhaven and Spider Cruises near Chincoteague. Spider Cruises does weddings and other party cruises.	None	Confirm maps with charter operators. Footprint (that was copied from scenic viewing) may be overly generous for the Eastern Shores not near Chincoteague
Charter transport	Only 2 of the 5 groups had knowledge of this use. Most of the data processing was "cleaning" the drawn shapes.	There was not a lot of knowledge of this use happening in the study area. There are a few routes out to some of the barrier islands that operate during the summer and there is a large sand mining operation south of Assateague that involves transport of workers	None	Confirm maps with charter operators

Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Recreational kayak and non-motorized vessel fishing	Most of the data processing was "cleaning" the drawn shapes and extending some specific spots.	3 of the 5 groups did not appear to know the entire study region. 1 group said it didn't happen near Chincoteague ("more of a big city activity") while other groups mapped that area as dominant. There are some notes on species.	None	Confirm maps with rec fisherman.
Recreational dive fishing	Most of the data processing was "cleaning" the drawn dominant shapes and buffering the points from the Chesapeake Angler Wrecks dataset by 100'. For most groups the depth cut-off was said to be 120', however 1 group said 30 fathoms so there are a few blocks in the footprint that are between 120-180'. It was mentioned by one group that fishing may take place in the water column above a wreck, so there is some wiggle room regarding the absolute depth of the wreck.	There are notes on species and areas. The most dominant areas are close to Virginia Beach. One group said the northern wrecks had better clarity.	None	Confirm maps with rec dive fisherman.

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Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Recreational fishing from motorized vessels	2 of the groups said the footprint was the entire study area. Most of the data processing was "cleaning" the drawn dominant shapes. 1 group said to buffer the points from the VA Beach Anglers Club dataset by 100' and add them to the dominant layer.	There are a lot of notes on species and areas. There are closures at Wallops and by the Navy but they aren't on a regular schedule. Heaviest use w/in 30 miles of ports and boat launches, at inlets and bays, near submarine canyons, and in state waters.	Is the footprint equal to the entire area reasonable (especially the NE corner of the study region where the EEZ curves)? Or is what other groups said (~10 miles past the shelf break) more reasonable for rec fishing?	Confirm maps with rec fishermen; check on footprint. Gwen Lockhart at the Virginia Aquarium has contact information for someone who could verify this use; Glockhart@virginiaaquarium.com 757-385-7575
Recreational shore fishing	All data were clipped to 100 yards from shore and the piers. The unclipped datasets were checked to make sure that small areas that were drawn just outside the boundary or just offshore of an island were not lost. In most cases these areas were added in except where it appeared that the drawer was trying to capture an inland bay or river that wasn't supposed to be in the project boundary. There were a couple groups that said to exclude Wallops but others that said that it is used privately so it should remain in the footprint.	There are many notes on species and locations.	Wallops was cut from the drawn dominant areas, but the way that the analysis blocks line up the Oceanside of Wallops is calculated as dominant due to other nearby dominant areas. Should the block immediately near Wallops be cut from the dominant layer?	Confirm maps with shore fishermen.

Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Recreational shellfish harvesting	The drawn shapes were "cleaned" and shapes on the ocean-side of barrier islands were removed. A couple of groups suggested a depth cutoff (2 feet, 4 feet) but the bathymetry is not detailed enough to do this accurately and this did not cut much from the shore-side of the barrier islands. The Baylor grounds were assessed for clipping but those shapes are very small relative to the analysis blocks and would not have changed the final analysis.	There was not a lot of expertise for this use apart from saying that it happens throughout the barrier island system. There are seasons and health-based closures for the target species. Depth is the limiting factor for recreational harvesters. VIMS may develop a more detailed map on shellfishing but there is no timeline for this to happen.	There was some discussion/lack of knowledge on whether Lynnhaven should be included in the dominant layer. In the draft analysis it is only in the footprint.	Confirm maps with recreational harvesters.
Recreational waterfowl hunting	The drawn shapes were "cleaned" and the unclipped datasets were checked to make sure that small areas that were drawn just outside the boundary were not lost. 1 group footprint was extended out to ½ mile beyond barrier islands. 2 groups were copied from shellfish harvesting.	There are notes on specific species. The entire inner barrier island system is dominant during open season. There are regulations against getting off of a boat to hunt at privately-owned islands but these are often ignored. Fall and winter are the dominant seasons.	None	Confirm maps with recreational hunters.

Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Motorized boating	The drawn shapes were "cleaned" and areas were either extended or clipped to a certain distance from shore.	This is a dominant use from spring to fall. People typically don't go out beyond 10-15 miles if they aren't fishing.	None	Confirm maps with recreational boaters.
Paddling	The drawn shapes were "cleaned" and areas were either extended or clipped to a certain distance from shore. 1 group said to buffer the coastal waterway trail and add it to the dominant layer.	There were not a lot of notes for this use other than one mention of the waterway trail and that there is use year-round but the dominant use is from Memorial Day to Labor Day.	Should all of the waterway trail be dominant? Currently only parts of it included. There are also stretches where the trail goes outside of the project area but I'm not sure if this is because it goes through the inner marshes or if this is a shoreline accuracy issue. There is also an isolated dominant block by the southern tip of Rogue Island that doesn't really make sense. It should probably be joined to the other dominant blocks or removed.	Confirm maps with paddlers. Ask about waterway trail relative to other dominant spots.

Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Sailing	The drawn shapes were "cleaned" and areas were either extended to a certain distance from shore or clipped to remove areas that were too shallow. The footprint is the entire area as there is dispersed transit throughout the region.	There wasn't a lot of expertise for this use in most of the groups. There is far less sailing happening beyond the CBBT compared to within Chesapeake Bay. There is Catamaran and Hobie Cat usage near Virginia Beach. Catamarans can go to a shallower depth than regular sailboats. There is a race to Bermuda but the route wasn't known by participants.	None	Confirm maps with sailors; race route could be overlaid on final maps if it is a fixed route and determined to be important by the group.
SCUBA/snorkeling/diving	The drawn shapes were "cleaned" and some snorkeling areas were connected to shore. Groups either said to copy the recreational dive fishing layer or to buffer the Chesapeake Angler Wrecks data set (not including wrecks deeper than 30 fa). Drawn areas associated with specific wrecks were verified to be covering the wreck locations.	There are limited notes on depth and locations. This use is similar to recreational dive fishing (wrecks are focus) but also includes nearshore snorkeling near Virginia Beach.	None	Confirm maps with recreational divers and snorkelers.

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Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Shore Use	All data were clipped to 100 yards from shore and the piers. The unclipped datasets were checked to make sure that small areas that were drawn just outside the boundary or just offshore of an island were not lost. In most cases these areas were added in except where it appeared that the drawer was trying to capture an inland bay or river that wasn't supposed to be in the project boundary. 1 group said to copy shapes from swimming. A couple of spots (Wallops, Fishermans, privately owned) are either off limits or only legal with a permit and clipping areas were provided by some of the groups.	There are notes on activities, locations, and restrictions. Most of the use occurs at easy access spots around inlets. Dominant use is from Memorial Day to Labor Day. There are seasonal closures and permitted sites. Wallops is closed to the public but still used.	Wallops was cut from the drawn dominant areas, but the way that the analysis blocks line up the Oceanside of Wallops is calculated as dominant due to other nearby dominant areas. Should the block immediately near Wallops be cut from the dominant layer? There was some confusion regarding the use's definition because as written it didn't appear to include beach use. One group did not map anything south of Fisherman's Island due to this confusion but it does not appear to have affected the final data set.	Confirm maps with shore users.

Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Swimming	All data were "cleaned" and clipped to 100 yards from shore. The unclipped datasets were checked to make sure that small areas that were drawn just outside the boundary or just offshore of an island were not lost. In most cases these areas were added in except where it appeared that the drawer was trying to capture an inland bay or river that wasn't supposed to be in the project boundary.	There are notes on seasonality and locations. Most people don't go deeper than standing depth. There is triathlon training near Virginia Beach. Dominant use is during summer. Use can depend on lifeguards, currents, and resort locations. There is some offshore swimming from charter boats but there is no consistent pattern associated with that activity.	None	Confirm maps with swimmers.
Surface water sports	There was minimal processing for this use beyond basic "cleaning."	There are notes on seasonality, locations, and type of sport. Kite and windsurfing are pursued both inside the bays and up to 1 mile from land. There are designated surf spots along Virginia Beach but the entire area is used. Some surfing areas are reached by boat.	None	Confirm maps with surface water sports users.

Use Type	Processing Notes	Other Notes	Data Questions/Concerns	Suggestions
Historic/ cultural	There was minimal processing for this use beyond basic "cleaning." Only 2 groups mapped this use using GIS; 1 other group collected written notes only.	There are many detailed notes documenting locations and activities. These notes will need to be analyzed and compiled into a cohesive document.	This use was planned as a mostly verbal activity but the participants were willing to map areas so there is a mix of GIS and written data. The GIS data was processed in the same manner as the other uses, but the project leaders will need to figure out the next steps on how to incorporate the written material and any other data sources.	None
Scenic/n atural views	There was minimal processing for this use beyond basic "cleaning." Only 2 groups mapped this use. 1 group said to create footprint = to 15 miles (viewshed from land).	There are many detailed notes documenting locations and activities. These notes will need to be analyzed and compiled into a cohesive document.	This use was planned as a mostly verbal activity but the participants were willing to map areas so there is a mix of GIS and written data. The GIS data was processed in the same manner as the other uses, but the project leaders will need to figure out the next steps on how to incorporate the written material and any other data sources.	None

Appendix C

2009 Recreational Use Observations on Barrier Islands, The Nature Conservancy Data

In 2009, the Nature Conservancy conducted a count of Red Knot populations on the barrier islands on April 25 and 30, May 14. 21, and 25, and on June 1. All recreational use counts are documented in the following table.

LOCATION	# PEOPLE ON BEACH/ISLAND	# VEHICLES ON BEACH	# BOATS	# PEOPLE SURF FISHING
Assateague Island, VA	1,602	624	0	0
Pelican Island	3	0	1	0
Wallops Island	33	15	0	4
Assawoman Island	2	1	0	0
Metompkin Island	30	0	5	0
Cedar Sandbar	21	0	7	0
Dawson Shoals	8	0	2	0
Parramore Island	12	0	6	10
Chimney Pole Marsh	0	0	0	0
Hog Island	25	5	0	9
Cobb Island	16	0	1	8
Little Cobb Island	11	0	2	0
Wreck Island	0	0	0	0
Ship Shoal Island	0	0	0	0
Myrtle Island	10	0	1	7
Smith Island	12	0	4	0
Fisherman Island	0	0	0	0
TOTALS	1,785	645	29	38

Appendix D

2006 Recreational Use Observations on Barrier Islands, Virginia Eastern Shorekeeper Data

The following table is a summary of recreational uses from "*Patrol Summary -Observations and Reports of Human Activity on the Atlantic Barrier Islands on the Eastern Shore of Virginia*" 2006, Virginia Eastern Shorekeeper, funded by the Virginia Coastal Zone Management Program through a grant from NOAA.

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LOCATION	People in posted areas	Unleashed dogs	Off road vehicles	All terrain vehicles	Surf fishing	Research activities	Cottages	Camping
Metompkin Island	x	x		x		x		
Cedar Island	x	x	x	x		x	6	x
Dawson Shoals	x	x			x	x		
Parramore Island		x		x	x	x	2	
Chimney Pole Marsh								
Hog Island		x		x		x	2	
Cobb Island	x	x			x	x	1	
Little Cobb Island	x					x		
Wreck Island	x	x		x	x	x		
Ship Shoal Island	x				x	x		
Myrtle Island						x		
Smith Island		x		x	x	x	1	
TOTALS**							12	
**Numbers appear where provided								

Appendix E

2012 Recreational and Commercial Use at Wise Point Ramp, Northampton County, U.S. Fish & Wildlife Service Data

For several months in 2012, the US Fish & Wildlife Service staff at the Eastern Shore of Virginia National Wildlife Refuge compiled recreational use data, including kayaks, at the Wise Point boat ramp in southern Northampton County. The following tables summarize the findings.

WISE POINT BOAT RAMP	RECREATIONAL	COMMERCIAL
Tuesday, May 01, 2012	0	0
Wednesday, May 02, 2012	0	0
Thursday, May 03, 2012	5	2
Friday, May 04, 2012	21	6
Saturday, May 05, 2012	94	29
Sunday, May 06, 2012	16	4
Monday, May 07, 2012	10	0
Tuesday, May 08, 2012	0	0
Wednesday, May 09, 2012	0	0
Thursday, May 10, 2012	0	0
Friday, May 11, 2012	31	2
Saturday, May 12, 2012	95	14
Sunday, May 13, 2012	51	4
Monday, May 14, 2012	0	0
Tuesday, May 15, 2012	0	0
Wednesday, May 16, 2012	0	0
Thursday, May 17, 2012	29	7
Friday, May 18, 2012	14	0
Saturday, May 19, 2012	33	10
Sunday, May 20, 2012	13	7
Monday, May 21, 2012	0	0
Tuesday, May 22, 2012	0	0
Wednesday, May 23, 2012	0	
Thursday, May 24, 2012	0	
Friday, May 25, 2012	93	18
Saturday, May 26, 2012	131	10
Sunday, May 27, 2012	102	1
Monday, May 28, 2012	78	25
Tuesday, May 29, 2012	16	0
Wednesday, May 30, 2012	0	0
Thursday, May 31, 2012	22	0
May Total Average	854 7.55	139 4.79
Friday, June 01, 2012	9	12
Saturday, June 02, 2012	36	3
Sunday, June 03, 2012	24	9

Monday, June 04, 2012	17	11
Tuesday, June 05, 2012	4	3
Wednesday, June 06, 2012	12	15
Thursday, June 07, 2012	35	14
Friday, June 08, 2012	33	21
Saturday, June 09, 2012	41	1
Sunday, June 10, 2012	77	6
Monday, June 11, 2012	30	7
Tuesday, June 12, 2012	0	0
Wednesday, June 13, 2012	12	11
Thursday, June 14, 2012	2	11
Friday, June 15, 2012	19	14
Saturday, June 16, 2012	30	0
Sunday, June 17, 2012	20	3
Monday, June 18, 2012	23	16
Tuesday, June 19, 2012	20	20
Wednesday, June 20, 2012	20	10
Thursday, June 21, 2012	31	19
Friday, June 22, 2012	34	6
Saturday, June 23, 2012	76	18
Sunday, June 24, 2012	45	12
Monday, June 25, 2012	7	3
Tuesday, June 26, 2012	29	3
Wednesday, June 27, 2012	67	4
Thursday, June 28, 2012	27	7
Friday, June 29, 2012	38	12
Saturday, June 30, 2012	40	7
June Total Average	**858** 28.60	**278** 9.27
Sunday, July 01, 2012	79	14
Monday, July 02, 2012	27	16
Tuesday, July 03, 2012	33	13
Wednesday, July 04, 2012	51	1
Thursday, July 05, 2012	65	7
Friday, July 06, 2012	75	3
Saturday, July 07, 2012	43	11
Sunday, July 08, 2012	9	0

Monday, July 09, 2012	12	4
Tuesday, July 10, 2012	18	18
Wednesday, July 11, 2012	15	14
Thursday, July 12, 2012	6	12
Friday, July 13, 2012	62	18
Saturday, July 14, 2012	57	12
Sunday, July 15, 2012	39	4
Monday, July 16, 2012	25	7
Tuesday, July 17, 2012	29	9
Wednesday, July 18, 2012	23	11
Thursday, July 19, 2012	33	5
Friday, July 20, 2012	30	3
Saturday, July 21, 2012	114	5
Sunday, July 22, 2012	78	1
Monday, July 23, 2012	48	6
Tuesday, July 24, 2012	31	3
Wednesday, July 25, 2012	12	3
Thursday, July 26, 2012	46	5
Friday, July 27, 2012	86	3
Saturday, July 28, 2012	107	2
Sunday, July 29, 2012	69	4
Monday, July 30, 2012	24	3
Tuesday, July 31, 2012	41	20
July Total Average	1387 44.74	237 7.65
Wednesday, August 01, 2012	23	10
Thursday, August 02, 2012	43	11
Friday, August 03, 2012	55	1
Saturday, August 04, 2012	121	6
Sunday, August 05, 2012	44	2
Monday, August 06, 2012	23	0
Tuesday, August 07, 2012	22	10
Wednesday, August 08, 2012	10	1
Thursday, August 09, 2012	26	0
Friday, August 10, 2012	710	8
Saturday, August 11, 2012	77	19
Sunday, August 12, 2012	23	1

Monday, August 13, 2012	35	19
Tuesday, August 14, 2012	22	25
Wednesday, August 15, 2012	0	0
Thursday, August 16, 2012	44	23
Friday, August 17, 2012	57	26
Saturday, August 18, 2012	91	2
Sunday, August 19, 2012	39	5
Monday, August 20, 2012	17	1
Tuesday, August 21, 2012	33	2
Wednesday, August 22, 2012	33	33
Thursday, August 23, 2012	21	11
Friday, August 24, 2012	41	12
Saturday, August 25, 2012	26	8
Sunday, August 26, 2012	29	7
Monday, August 27, 2012	21	36
Tuesday, August 28, 2012	23	19
Wednesday, August 29, 2012	3	17
Thursday, August 30, 2012	19	19
Friday, August 31, 2012	14	25
August Total	1745	359
Average	56.29	11.58
Saturday, September 01, 2012	66	6
Sunday, September 02, 2012	41	5
Monday, September 03, 2012	27	0
Tuesday, September 04, 2012	20	3
Wednesday, September 05, 2012	9	5
Thursday, September 06, 2012	8	3
Friday, September 07, 2012	24	1
Saturday, September 08, 2012	56	9
Sunday, September 09, 2012	31	4
Monday, September 10, 2012	14	10
Tuesday, September 11, 2012	0	0
Wednesday, September 12, 2012	21	9
Thursday, September 13, 2012	10	1
Friday, September 14, 2012	29	17
Saturday, September 15, 2012	57	13
Sunday, September 16, 2012	55	12
Monday, September 17, 2012	19	25

Tuesday, September 18, 2012	6	3
Wednesday, September 19, 2012	0	0
Thursday, September 20, 2012	16	2
Friday, September 21, 2012	32	4
Saturday, September 22, 2012	89	7
Sunday, September 23, 2012	47	0
Monday, September 24, 2012	7	2
Tuesday, September 25, 2012	0	0
Wednesday, September 26, 2012	18	18
Thursday, September 27, 2012	26	22
Friday, September 28, 2012	25	11
Saturday, September 29, 2012	29	7
Sunday, September 30, 2012	31	2
September Total	813	201
Average	27.1	6.7
Monday, October 01, 2012	0	0
Tuesday, October 02, 2012	0	0
Wednesday, October 03, 2012	13	3
Thursday, October 04, 2012	18	17
Friday, October 05, 2012	15	10
Saturday, October 06, 2012	48	6
Sunday, October 07, 2012	5	2
Monday, October 08, 2012	5	21
Tuesday, October 09, 2012	4	7
Wednesday, October 10, 2012	0	0
Thursday, October 11, 2012	0	0
Friday, October 12, 2012	11	11
Saturday, October 13, 2012	8	0
Sunday, October 14, 2012	24	0
Monday, October 15, 2012	0	0
Tuesday, October 16, 2012	0	0
Wednesday, October 17, 2012	10	11
Thursday, October 18, 2012	17	13
Friday, October 19, 2012	5	7
Saturday, October 20, 2012	53	1
Sunday, October 21, 2012	17	6
Monday, October 22, 2012	16	13
Tuesday, October 23, 2012	11	5

Wednesday, October 24, 2012	0	0
Thursday, October 25, 2012	6	11
Friday, October 26, 2012	6	9
Saturday, October 27, 2012	0	0
Sunday, October 28, 2012	0	1
Monday, October 29, 2012	0	0
Tuesday, October 30, 2012	0	0
Wednesday, October 31, 2012	1	8
October Total	293	162
Average	9.4	5.2

Appendix F

Aerial Survey Photograph Use Counts

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2012 001	7/3/12														5						
Seaside Rec Use Wkshp July 2012 003	7/3/12										1				3						
Seaside Rec Use Wkshp July 2012 004	7/3/12														3						
Seaside Rec Use Wkshp July 2012 006	7/3/12														1				2		
Seaside Rec Use Wkshp July 2012 007	7/3/12										1				1						
Seaside Rec Use Wkshp July 2012 008	7/3/12														5						
Seaside Rec Use Wkshp July 2012 009	7/3/12										1										
Seaside Rec Use Wkshp July 2012 011	7/3/12														1						
Seaside Rec Use Wkshp July 2012 012	7/3/12														2						
Seaside Rec Use Wkshp July 2012 013	7/3/12	1									2				8						
Seaside Rec Use Wkshp July 2012 014	7/3/12											3			1						
Seaside Rec Use Wkshp July 2012 015	7/3/12										3				9	1			45		5
Seaside Rec Use Wkshp July 2012 016	7/3/12										1				1						
Seaside Rec Use Wkshp July 2012 017	7/3/12														11						
Seaside Rec Use Wkshp July 2012 018	7/3/12														2						
Seaside Rec Use Wkshp July 2012 020	7/3/12														6						
Seaside Rec Use Wkshp July 2012 021	7/3/12	2													2				4		
Seaside Rec Use Wkshp July 2012 022	7/3/12														3						
Seaside Rec Use Wkshp July 2012 023	7/3/12														7	1					
Seaside Rec Use Wkshp July 2012 024	7/3/12														2						
Seaside Rec Use Wkshp July 2012 027	7/3/12																		3		
Seaside Rec Use Wkshp July 2012 028	7/3/12															1			220	6	43

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Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2012 029	7/3/12																		220	21	34
Seaside Rec Use Wkshp July 2012 030	7/3/12															1			90	15	170
Seaside Rec Use Wkshp July 2012 031	7/3/12																		162		44
Seaside Rec Use Wkshp July 2012 032	7/3/12																		2		
Seaside Rec Use Wkshp July 2012 033	7/3/12														2					1	
Seaside Rec Use Wkshp Aug 2012 001	8/19/12														1	1					
Seaside Rec Use Wkshp Aug 2012 003	8/19/12										2				1						
Seaside Rec Use Wkshp Aug 2012 004	8/19/12										1										
Seaside Rec Use Wkshp Aug 2012 005	8/19/12	2																			
Seaside Rec Use Wkshp Aug 2012 010	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 013	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 015	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 020	8/19/12															1					
Seaside Rec Use Wkshp Aug 2012 022	8/19/12														20						
Seaside Rec Use Wkshp Aug 2012 024	8/19/12														7						
Seaside Rec Use Wkshp Aug 2012 025	8/19/12														8						
Seaside Rec Use Wkshp Aug 2012 026	8/19/12														2						
Seaside Rec Use Wkshp Aug 2012 027	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 028	8/19/12														4						
Seaside Rec Use Wkshp Aug 2012 032	8/19/12														3						
Seaside Rec Use Wkshp Aug 2012 033	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 034	8/19/12														2						
Seaside Rec Use Wkshp Aug 2012 035	8/19/12														2						
Seaside Rec Use Wkshp Aug 2012 038	8/19/12	1																			

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Aug 2012 044	8/19/12																		2		
Seaside Rec Use Wkshp Aug 2012 046	8/19/12																		1		
Seaside Rec Use Wkshp Aug 2012 048	8/19/12																		2		
Seaside Rec Use Wkshp Aug 2012 049	8/19/12																		2		
Seaside Rec Use Wkshp Aug 2012 050	8/19/12																		2		
Seaside Rec Use Wkshp Aug 2012 052	8/19/12																		7		
Seaside Rec Use Wkshp Aug 2012 053	8/19/12																		33		1
Seaside Rec Use Wkshp Aug 2012 054	8/19/12															3			36	2	4
Seaside Rec Use Wkshp Aug 2012 055	8/19/12																		41	4	5
Seaside Rec Use Wkshp Aug 2012 056	8/19/12																		28	1	2
Seaside Rec Use Wkshp Aug 2012 057	8/19/12																		11		
Seaside Rec Use Wkshp Aug 2012 058	8/19/12											1							3		
Seaside Rec Use Wkshp Aug 2012 059	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 060	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 061	8/19/12											1									
Seaside Rec Use Wkshp Aug 2012 062	8/19/12											2									
Seaside Rec Use Wkshp Aug 2012 063	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 064	8/19/12	2													1						
Seaside Rec Use Wkshp Aug 2012 066	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 067	8/19/12	1													1				1		
Seaside Rec Use Wkshp Aug 2012 068	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 069	8/19/12	3																	2		
Seaside Rec Use Wkshp Aug 2012 073	8/19/12	2													1						
Seaside Rec Use Wkshp Aug 2012 074	8/19/12														1						

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Aug 2012 078	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 081	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 083	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 084	8/19/12	1													1						
Seaside Rec Use Wkshp Aug 2012 098	8/19/12	1													1						
Seaside Rec Use Wkshp Aug 2012 100	8/19/12										1				1						
Seaside Rec Use Wkshp Aug 2012 101	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 103	8/19/12	2																			
Seaside Rec Use Wkshp Aug 2012 105	8/19/12	2													2						
Seaside Rec Use Wkshp Aug 2012 107	8/19/12	1																			
Seaside Rec Use Wkshp Aug 2012 108	8/19/12	1													1						
Seaside Rec Use Wkshp Aug 2012 109	8/19/12	4																			
Seaside Rec Use Wkshp Aug 2012 110	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 111	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 113	8/19/12															2					
Seaside Rec Use Wkshp Aug 2012 117	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 118	8/19/12														1						
Seaside Rec Use Wkshp Aug 2012 061	8/23/12	1																			
Seaside Rec Use Wkshp Aug 2012 062	8/23/12	1																			
Seaside Rec Use Wkshp Aug 2012 063	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 065	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 070	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 075	8/23/12														2						
Seaside Rec Use Wkshp Aug 2012 076	8/23/12														1						

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Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Aug 2012 079	8/23/12	1																			
Seaside Rec Use Wkshp Aug 2012 080	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 083	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 084	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 085	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 086	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 089	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 090	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 092	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 093	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 094	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 097	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 098	8/23/12	3																			
Seaside Rec Use Wkshp Aug 2012 099	8/23/12	3																			
Seaside Rec Use Wkshp Aug 2012 100	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 103	8/23/12	1													1						
Seaside Rec Use Wkshp Aug 2012 104	8/23/12										1				1						
Seaside Rec Use Wkshp Aug 2012 106	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 107	8/23/12	3													1						
Seaside Rec Use Wkshp Aug 2012 108	8/23/12	10													1						
Seaside Rec Use Wkshp Aug 2012 110	8/23/12	1																			
Seaside Rec Use Wkshp Aug 2012 111	8/23/12	1													1				4		
Seaside Rec Use Wkshp Aug 2012 113	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 114	8/23/12																1				

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Aug 2012 116	8/23/12											1									
Seaside Rec Use Wkshp Aug 2012 117	8/23/12																		2		
Seaside Rec Use Wkshp Aug 2012 118	8/23/12																		3		
Seaside Rec Use Wkshp Aug 2012 119	8/23/12																		2		
Seaside Rec Use Wkshp Aug 2012 120	8/23/12																		13		4
Seaside Rec Use Wkshp Aug 2012 121	8/23/12																		56		11
Seaside Rec Use Wkshp Aug 2012 122	8/23/12																		30		20
Seaside Rec Use Wkshp Aug 2012 123	8/23/12																		19		5
Seaside Rec Use Wkshp Aug 2012 124	8/23/12																		3		
Seaside Rec Use Wkshp Aug 2012 125	8/23/12																		3	1	1
Seaside Rec Use Wkshp Aug 2012 126	8/23/12											1									
Seaside Rec Use Wkshp Aug 2012 128	8/23/12											2									
Seaside Rec Use Wkshp Aug 2012 130	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 133	8/23/12														1						
Seaside Rec Use Wkshp Aug 2012 134	8/23/12	1																			
Seaside Rec Use Wkshp Aug 2012 137	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 139	8/23/12															2					
Seaside Rec Use Wkshp Aug 2012 140	8/23/12															2					
Seaside Rec Use Wkshp Aug 2012 141	8/23/12															1					
Seaside Rec Use Wkshp Aug 2012 142	8/23/12														1	1					
Seaside Rec Use Wkshp Aug 2012 145	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 146	8/23/12	1																			
Seaside Rec Use Wkshp Aug 2012 147	8/23/12										1										
Seaside Rec Use Wkshp Aug 2012 0428	8/30/12	1																			

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Aug 2012 0430	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0431	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0432	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0434	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0435	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0437	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0439	8/30/12										1				1						
Seaside Rec Use Wkshp Aug 2012 0440	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0441	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0443	8/30/12	1													2						
Seaside Rec Use Wkshp Aug 2012 0444	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0445	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0446	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0447	8/30/12	2																			
Seaside Rec Use Wkshp Aug 2012 0448	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0451	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0452	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0453	8/30/12														2						
Seaside Rec Use Wkshp Aug 2012 0454	8/30/12														2						
Seaside Rec Use Wkshp Aug 2012 0455	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0456	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0457	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0458	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0459	8/30/12	1																			

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Aug 2012 0461	8/30/12																		1		
Seaside Rec Use Wkshp Aug 2012 0462	8/30/12																		1		
Seaside Rec Use Wkshp Aug 2012 0464	8/30/12																		6		
Seaside Rec Use Wkshp Aug 2012 0467	8/30/12																		13	1	1
Seaside Rec Use Wkshp Aug 2012 0468	8/30/12																		13		
Seaside Rec Use Wkshp Aug 2012 0469	8/30/12																		11		1
Seaside Rec Use Wkshp Aug 2012 0470	8/30/12																		2		
Seaside Rec Use Wkshp Aug 2012 0471	8/30/12											2									
Seaside Rec Use Wkshp Aug 2012 0472	8/30/12											2									
Seaside Rec Use Wkshp Aug 2012 0473	8/30/12											1							2		
Seaside Rec Use Wkshp Aug 2012 0474	8/30/12																		2		
Seaside Rec Use Wkshp Aug 2012 0477	8/30/12																		2		
Seaside Rec Use Wkshp Aug 2012 0479	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0480	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0482	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0483	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0486	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0488	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0489	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0490	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0491	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0493	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0495	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0496	8/30/12														1						

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Aug 2012 0504	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0506	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0507	8/30/12										2										
Seaside Rec Use Wkshp Aug 2012 0508	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0509	8/30/12										1				1						
Seaside Rec Use Wkshp Aug 2012 0510	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0511	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0515	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0518	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0520	8/30/12										1										
Seaside Rec Use Wkshp Aug 2012 0521	8/30/12															1					
Seaside Rec Use Wkshp Aug 2012 0522	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0524	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0525	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0526	8/30/12	2																	2		1
Seaside Rec Use Wkshp Aug 2012 0529	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0530	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0531	8/30/12	1																			
Seaside Rec Use Wkshp Aug 2012 0532	8/30/12														1						
Seaside Rec Use Wkshp Aug 2012 0533	8/30/12														2						
Seaside Rec Use Wkshp Sept 2012 0537	9/1/12										2										
Seaside Rec Use Wkshp Sept 2012 0538	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0539	9/1/12														3				6		
Seaside Rec Use Wkshp Sept 2012 0540	9/1/12										1										

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2012 0541	9/1/12	2														2			3		
Seaside Rec Use Wkshp Sept 2012 0542	9/1/12																		4		
Seaside Rec Use Wkshp Sept 2012 0543	9/1/12																		3		
Seaside Rec Use Wkshp Sept 2012 0544	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0545	9/1/12															2					
Seaside Rec Use Wkshp Sept 2012 0546	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0547	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0548	9/1/12	4																	6		
Seaside Rec Use Wkshp Sept 2012 0550	9/1/12																				3
Seaside Rec Use Wkshp Sept 2012 0551	9/1/12	1													2				4		
Seaside Rec Use Wkshp Sept 2012 0552	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0553	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0554	9/1/12														3						
Seaside Rec Use Wkshp Sept 2012 0556	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0558	9/1/12	2																			3
Seaside Rec Use Wkshp Sept 2012 0559	9/1/12														5						
Seaside Rec Use Wkshp Sept 2012 0561	9/1/12														60				121		7
Seaside Rec Use Wkshp Sept 2012 0566	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0567	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0569	9/1/12														1						3
Seaside Rec Use Wkshp Sept 2012 0570	9/1/12														1	4					
Seaside Rec Use Wkshp Sept 2012 0571	9/1/12														1						3
Seaside Rec Use Wkshp Sept 2012 0574	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0575	9/1/12										1				1	2					2

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2012 0577	9/1/12										1				2						
Seaside Rec Use Wkshp Sept 2012 0578	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0579	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0580	9/1/12															2					
Seaside Rec Use Wkshp Sept 2012 0581	9/1/12	2													5						
Seaside Rec Use Wkshp Sept 2012 0582	9/1/12														2						
Seaside Rec Use Wkshp Sept 2012 0583	9/1/12	1													2						
Seaside Rec Use Wkshp Sept 2012 0584	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0586	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0587	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0588	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0590	9/1/12										2										
Seaside Rec Use Wkshp Sept 2012 0591	9/1/12	2																			
Seaside Rec Use Wkshp Sept 2012 0593	9/1/12	8													1						
Seaside Rec Use Wkshp Sept 2012 0594	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0595	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0596	9/1/12										1				1						
Seaside Rec Use Wkshp Sept 2012 0597	9/1/12	1													1						
Seaside Rec Use Wkshp Sept 2012 0598	9/1/12														2						
Seaside Rec Use Wkshp Sept 2012 0599	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0600	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0601	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0602	9/1/12														2						
Seaside Rec Use Wkshp Sept 2012 0603	9/1/12														1						

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2012 0605	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0606	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0607	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0608	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0609	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0610	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0612	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0613	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0614	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0615	9/1/12										1					1					
Seaside Rec Use Wkshp Sept 2012 0616	9/1/12														1					2	
Seaside Rec Use Wkshp Sept 2012 0617	9/1/12	2																			
Seaside Rec Use Wkshp Sept 2012 0619	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0620	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0621	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0622	9/1/12										4				1						
Seaside Rec Use Wkshp Sept 2012 0623	9/1/12										1				2						
Seaside Rec Use Wkshp Sept 2012 0624	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0625	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0626	9/1/12																		1		
Seaside Rec Use Wkshp Sept 2012 0630	9/1/12																		5		
Seaside Rec Use Wkshp Sept 2012 0631	9/1/12																		3		
Seaside Rec Use Wkshp Sept 2012 0632	9/1/12																		3		
Seaside Rec Use Wkshp Sept 2012 0633	9/1/12																		32		

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2012 0634	9/1/12																		27	3	13
Seaside Rec Use Wkshp Sept 2012 0635	9/1/12																		56		1
Seaside Rec Use Wkshp Sept 2012 0636	9/1/12																		50		
Seaside Rec Use Wkshp Sept 2012 0637	9/1/12																		51		
Seaside Rec Use Wkshp Sept 2012 0639	9/1/12											2									2
Seaside Rec Use Wkshp Sept 2012 0640	9/1/12																		2		
Seaside Rec Use Wkshp Sept 2012 0644	9/1/12																		12		
Seaside Rec Use Wkshp Sept 2012 0645	9/1/12																		1		
Seaside Rec Use Wkshp Sept 2012 0648	9/1/12																		4		
Seaside Rec Use Wkshp Sept 2012 0652	9/1/12										2										
Seaside Rec Use Wkshp Sept 2012 0653	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0656	9/1/12	2													1						
Seaside Rec Use Wkshp Sept 2012 0657	9/1/12														6				10		
Seaside Rec Use Wkshp Sept 2012 0661	9/1/12														1	1					
Seaside Rec Use Wkshp Sept 2012 0662	9/1/12	1													1						
Seaside Rec Use Wkshp Sept 2012 0664	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0665	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0666	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0669	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0673	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0676	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0677	9/1/12	2																			
Seaside Rec Use Wkshp Sept 2012 0678	9/1/12														4				8		
Seaside Rec Use Wkshp Sept 2012 0679	9/1/12										1										

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2012 0682	9/1/12										1										
Seaside Rec Use Wkshp Sept 2012 0683	9/1/12														1				1		
Seaside Rec Use Wkshp Sept 2012 0684	9/1/12																		2		
Seaside Rec Use Wkshp Sept 2012 0685	9/1/12										2										
Seaside Rec Use Wkshp Sept 2012 0688	9/1/12										2										
Seaside Rec Use Wkshp Sept 2012 0691	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0692	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0693	9/1/12	1																			
Seaside Rec Use Wkshp Sept 2012 0694	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0698	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0699	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0709	9/1/12														1						
Seaside Rec Use Wkshp Sept 2012 0833	9/6/12										1				0						
Seaside Rec Use Wkshp Sept 2012 0834	9/6/12										2				0						
Seaside Rec Use Wkshp Sept 2012 0910	9/9/12	1																			
Seaside Rec Use Wkshp Sept 2012 0912	9/9/12														1						
Seaside Rec Use Wkshp Sept 2012 0913	9/9/12										1										
Seaside Rec Use Wkshp Sept 2012 0914	9/9/12														1						
Seaside Rec Use Wkshp Sept 2012 0916	9/9/12	1																			
Seaside Rec Use Wkshp Sept 2012 0917	9/9/12														2						
Seaside Rec Use Wkshp Sept 2012 0919	9/9/12	1																			
Seaside Rec Use Wkshp Sept 2012 0920	9/9/12																		2		
Seaside Rec Use Wkshp Sept 2012 0922	9/9/12	1																			
Seaside Rec Use Wkshp Sept 2012 0923	9/9/12														1						

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2012 0926	9/9/12														1						
Seaside Rec Use Wkshp Sept 2012 0928	9/9/12	2																			
Seaside Rec Use Wkshp Sept 2012 0930	9/9/12																		4		
Seaside Rec Use Wkshp Sept 2012 0931	9/9/12																		2		
Seaside Rec Use Wkshp Sept 2012 0932	9/9/12																		2		
Seaside Rec Use Wkshp Sept 2012 0933	9/9/12																		2		
Seaside Rec Use Wkshp Sept 2012 0934	9/9/12																		2		
Seaside Rec Use Wkshp Sept 2012 0935	9/9/12																		9	1	1
Seaside Rec Use Wkshp Sept 2012 0936	9/9/12																		7		1
Seaside Rec Use Wkshp Sept 2012 0937	9/9/12																		8		
Seaside Rec Use Wkshp Sept 2012 0938	9/9/12																		3		
Seaside Rec Use Wkshp Sept 2012 0939	9/9/12																		10		
Seaside Rec Use Wkshp Sept 2012 0941	9/9/12																		2		
Seaside Rec Use Wkshp Sept 2012 0942	9/9/12																		2		
Seaside Rec Use Wkshp Sept 2012 0944	9/9/12																			2	
Seaside Rec Use Wkshp Sept 2012 0949	9/9/12	1																			
Seaside Rec Use Wkshp Sept 2012 0950	9/9/12	1																			
Seaside Rec Use Wkshp Sept 2012 0951	9/9/12										1										
Seaside Rec Use Wkshp Sept 2012 0952	9/9/12										1										
Seaside Rec Use Wkshp Sept 2012 0953	9/9/12														1						
Seaside Rec Use Wkshp Sept 2012 0956	9/9/12														1						
Seaside Rec Use Wkshp Sept 2012 0957	9/9/12	1																			
Seaside Rec Use Wkshp Sept 2012 0958	9/9/12														1						
Seaside Rec Use Wkshp Sept 2012 0960	9/9/12										2										

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2012 1062	9/22/12															1					
Seaside Rec Use Wkshp Sept 2012 1063	9/22/12	1																			
Seaside Rec Use Wkshp Sept 2012 1064	9/22/12	1																			
Seaside Rec Use Wkshp Sept 2012 1066	9/22/12	1																			
Seaside Rec Use Wkshp Sept 2012 1067	9/22/12										1										
Seaside Rec Use Wkshp Sept 2012 1068	9/22/12	1																			
Seaside Rec Use Wkshp Sept 2012 1069	9/22/12										9				1		1				
Seaside Rec Use Wkshp Sept 2012 1187	9/22/12														1						
Seaside Rec Use Wkshp July 2013 001	7/6/13														1						
Seaside Rec Use Wkshp July 2013 003	7/6/13														1						
Seaside Rec Use Wkshp July 2013 004	7/6/13														1						
Seaside Rec Use Wkshp July 2013 006	7/6/13										1										
Seaside Rec Use Wkshp July 2013 008	7/6/13	4														2					
Seaside Rec Use Wkshp July 2013 011	7/6/13														3				2		
Seaside Rec Use Wkshp July 2013 012	7/6/13	2									2										
Seaside Rec Use Wkshp July 2013 015	7/6/13														2				8		
Seaside Rec Use Wkshp July 2013 017	7/6/13														1						
Seaside Rec Use Wkshp July 2013 018	7/6/13														1						
Seaside Rec Use Wkshp July 2013 027	7/6/13																		1		
Seaside Rec Use Wkshp July 2013 028	7/6/13	1													2						
Seaside Rec Use Wkshp July 2013 029	7/6/13														1						
Seaside Rec Use Wkshp July 2013 035	7/6/13														1						
Seaside Rec Use Wkshp July 2013 036	7/6/13	1																			
Seaside Rec Use Wkshp July 2013 040	7/6/13														1						

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2013 041	7/6/13																		4		
Seaside Rec Use Wkshp July 2013 042	7/6/13																		2		
Seaside Rec Use Wkshp July 2013 043	7/6/13														1						
Seaside Rec Use Wkshp July 2013 045	7/6/13										1										
Seaside Rec Use Wkshp July 2013 047	7/6/13														2						
Seaside Rec Use Wkshp July 2013 051	7/6/13														1						
Seaside Rec Use Wkshp July 2013 056	7/6/13														4				6		
Seaside Rec Use Wkshp July 2013 057	7/6/13														31						
Seaside Rec Use Wkshp July 2013 059	7/6/13	4																			
Seaside Rec Use Wkshp July 2013 060	7/6/13	1																			
Seaside Rec Use Wkshp July 2013 061	7/6/13										1										
Seaside Rec Use Wkshp July 2013 062	7/6/13										1										
Seaside Rec Use Wkshp July 2013 063	7/6/13										14										
Seaside Rec Use Wkshp July 2013 064	7/6/13										1										
Seaside Rec Use Wkshp July 2013 065	7/6/13										6										
Seaside Rec Use Wkshp July 2013 066	7/6/13										1										
Seaside Rec Use Wkshp July 2013 068	7/6/13										7										
Seaside Rec Use Wkshp July 2013 069	7/6/13										5										
Seaside Rec Use Wkshp July 2013 070	7/6/13										2										
Seaside Rec Use Wkshp July 2013 071	7/6/13										2										
Seaside Rec Use Wkshp July 2013 072	7/6/13										1				1						
Seaside Rec Use Wkshp July 2013 073	7/6/13														1						
Seaside Rec Use Wkshp July 2013 076	7/6/13										1										
Seaside Rec Use Wkshp July 2013 077	7/6/13										7										

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2013 078	7/6/13										1				1						
Seaside Rec Use Wkshp July 2013 080	7/6/13	1									2										
Seaside Rec Use Wkshp July 2013 081	7/6/13														1						
Seaside Rec Use Wkshp July 2013 219	7/6/13														1						
Seaside Rec Use Wkshp July 2013 220	7/6/13														1						
Seaside Rec Use Wkshp July 2013 221	7/6/13														1						
Seaside Rec Use Wkshp July 2013 222	7/6/13																		1		
Seaside Rec Use Wkshp July 2013 224	7/6/13	1																			
Seaside Rec Use Wkshp July 2013 225	7/6/13														1						
Seaside Rec Use Wkshp July 2013 001	7/27/13	5													2						
Seaside Rec Use Wkshp July 2013 002	7/27/13														3						
Seaside Rec Use Wkshp July 2013 005	7/27/13	3													2						
Seaside Rec Use Wkshp July 2013 006	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 007	7/27/13														2				6		
Seaside Rec Use Wkshp July 2013 008	7/27/13										1										
Seaside Rec Use Wkshp July 2013 009	7/27/13														1						
Seaside Rec Use Wkshp July 2013 010	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 012	7/27/13														1						
Seaside Rec Use Wkshp July 2013 013	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 015	7/27/13										1										
Seaside Rec Use Wkshp July 2013 016	7/27/13														1						
Seaside Rec Use Wkshp July 2013 017	7/27/13														1						
Seaside Rec Use Wkshp July 2013 018	7/27/13	3													1						
Seaside Rec Use Wkshp July 2013 019	7/27/13										3										

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2013 020	7/27/13														10				38		
Seaside Rec Use Wkshp July 2013 023	7/27/13														3						
Seaside Rec Use Wkshp July 2013 025	7/27/13														1						
Seaside Rec Use Wkshp July 2013 026	7/27/13	2																			
Seaside Rec Use Wkshp July 2013 027	7/27/13	1													1						
Seaside Rec Use Wkshp July 2013 028	7/27/13	2													2						
Seaside Rec Use Wkshp July 2013 029	7/27/13	3																			
Seaside Rec Use Wkshp July 2013 031	7/27/13										1										
Seaside Rec Use Wkshp July 2013 033	7/27/13										2										
Seaside Rec Use Wkshp July 2013 034	7/27/13										2										
Seaside Rec Use Wkshp July 2013 035	7/27/13														1						
Seaside Rec Use Wkshp July 2013 037	7/27/13														1						
Seaside Rec Use Wkshp July 2013 042	7/27/13	2																			
Seaside Rec Use Wkshp July 2013 045	7/27/13														1						
Seaside Rec Use Wkshp July 2013 047	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 050	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 052	7/27/13														1						
Seaside Rec Use Wkshp July 2013 053	7/27/13														1						
Seaside Rec Use Wkshp July 2013 055	7/27/13														1						
Seaside Rec Use Wkshp July 2013 058	7/27/13														1						
Seaside Rec Use Wkshp July 2013 059	7/27/13														1						
Seaside Rec Use Wkshp July 2013 060	7/27/13														1						
Seaside Rec Use Wkshp July 2013 062	7/27/13														1						
Seaside Rec Use Wkshp July 2013 064	7/27/13														1						

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2013 065	7/27/13														3						
Seaside Rec Use Wkshp July 2013 066	7/27/13														6				25		
Seaside Rec Use Wkshp July 2013 067	7/27/13										1				1						
Seaside Rec Use Wkshp July 2013 068	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 069	7/27/13														1						
Seaside Rec Use Wkshp July 2013 070	7/27/13														4				2		
Seaside Rec Use Wkshp July 2013 072	7/27/13										1										
Seaside Rec Use Wkshp July 2013 073	7/27/13														1						
Seaside Rec Use Wkshp July 2013 075	7/27/13														1						
Seaside Rec Use Wkshp July 2013 077	7/27/13	1													2						
Seaside Rec Use Wkshp July 2013 078	7/27/13	1									1										
Seaside Rec Use Wkshp July 2013 080	7/27/13														2						
Seaside Rec Use Wkshp July 2013 082	7/27/13														3				4		
Seaside Rec Use Wkshp July 2013 084	7/27/13														2						
Seaside Rec Use Wkshp July 2013 085	7/27/13														1						
Seaside Rec Use Wkshp July 2013 089	7/27/13										1				1						
Seaside Rec Use Wkshp July 2013 092	7/27/13	2																			
Seaside Rec Use Wkshp July 2013 096	7/27/13														1						
Seaside Rec Use Wkshp July 2013 101	7/27/13										1										
Seaside Rec Use Wkshp July 2013 103	7/27/13														1						
Seaside Rec Use Wkshp July 2013 104	7/27/13														2				5		
Seaside Rec Use Wkshp July 2013 106	7/27/13										1										
Seaside Rec Use Wkshp July 2013 107	7/27/13														2						
Seaside Rec Use Wkshp July 2013 108	7/27/13																		7		

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2013 109	7/27/13																1				
Seaside Rec Use Wkshp July 2013 113	7/27/13														1						
Seaside Rec Use Wkshp July 2013 115	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 116	7/27/13														1						
Seaside Rec Use Wkshp July 2013 117	7/27/13														1						
Seaside Rec Use Wkshp July 2013 119	7/27/13										2				1						
Seaside Rec Use Wkshp July 2013 121	7/27/13										1										
Seaside Rec Use Wkshp July 2013 122	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 125	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 126	7/27/13										1						1				
Seaside Rec Use Wkshp July 2013 128	7/27/13														1						
Seaside Rec Use Wkshp July 2013 129	7/27/13														1						
Seaside Rec Use Wkshp July 2013 130	7/27/13														1						
Seaside Rec Use Wkshp July 2013 132	7/27/13														1						
Seaside Rec Use Wkshp July 2013 133	7/27/13														2						
Seaside Rec Use Wkshp July 2013 134	7/27/13														1						
Seaside Rec Use Wkshp July 2013 135	7/27/13														1						
Seaside Rec Use Wkshp July 2013 136	7/27/13														1						
Seaside Rec Use Wkshp July 2013 137	7/27/13														1						
Seaside Rec Use Wkshp July 2013 139	7/27/13														1						
Seaside Rec Use Wkshp July 2013 141	7/27/13										1										
Seaside Rec Use Wkshp July 2013 143	7/27/13														1						
Seaside Rec Use Wkshp July 2013 145	7/27/13										1										
Seaside Rec Use Wkshp July 2013 146	7/27/13	1																			

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp July 2013 147	7/27/13														1						
Seaside Rec Use Wkshp July 2013 148	7/27/13										3										
Seaside Rec Use Wkshp July 2013 149	7/27/13																		1		
Seaside Rec Use Wkshp July 2013 152	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 153	7/27/13	1													1						
Seaside Rec Use Wkshp July 2013 154	7/27/13														1						
Seaside Rec Use Wkshp July 2013 156	7/27/13										1				2						
Seaside Rec Use Wkshp July 2013 157	7/27/13										2										
Seaside Rec Use Wkshp July 2013 158	7/27/13	1																			
Seaside Rec Use Wkshp July 2013 159	7/27/13														1						
Seaside Rec Use Wkshp July 2013 160	7/27/13										1				1						
Seaside Rec Use Wkshp July 2013 162	7/27/13										1										
Seaside Rec Use Wkshp July 2013 163	7/27/13										1										
Seaside Rec Use Wkshp July 2013 164	7/27/13										3				1						
Seaside Rec Use Wkshp Sept 2013 317	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 318	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 319	9/5/13	1																			
Seaside Rec Use Wkshp Sept 2013 321	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 322	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 323	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 327	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 328	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 329	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 330	9/5/13														1						

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2013 331	9/5/13																		1		
Seaside Rec Use Wkshp Sept 2013 334	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 343	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 345	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 346	9/5/13														2						
Seaside Rec Use Wkshp Sept 2013 350	9/5/13	1																			
Seaside Rec Use Wkshp Sept 2013 351	9/5/13														2						
Seaside Rec Use Wkshp Sept 2013 362	9/5/13	3																			
Seaside Rec Use Wkshp Sept 2013 363	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 367	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 368	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 369	9/5/13	1																			
Seaside Rec Use Wkshp Sept 2013 371	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 372	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 375	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 376	9/5/13	1																			
Seaside Rec Use Wkshp Sept 2013 378	9/5/13										2				1						
Seaside Rec Use Wkshp Sept 2013 379	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 380	9/5/13										2				1						
Seaside Rec Use Wkshp Sept 2013 381	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 382	9/5/13										3				1						
Seaside Rec Use Wkshp Sept 2013 383	9/5/13										3										
Seaside Rec Use Wkshp Sept 2013 384	9/5/13	1																			
Seaside Rec Use Wkshp Sept 2013 385	9/5/13	1																			

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Sept 2013 386	9/5/13														1						
Seaside Rec Use Wkshp Sept 2013 388	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 389	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 391	9/5/13										2										
Seaside Rec Use Wkshp Sept 2013 393	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 395	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 396	9/5/13										1				1						
Seaside Rec Use Wkshp Sept 2013 397	9/5/13										1										
Seaside Rec Use Wkshp Sept 2013 490	9/5/13	1																			
Seaside Rec Use Wkshp Sept 2013 493	9/26/13	2																			
Seaside Rec Use Wkshp Sept 2013 494	9/26/13	1																			
Seaside Rec Use Wkshp Sept 2013 501	9/26/13																1				
Seaside Rec Use Wkshp Sept 2013 519	9/26/13	1																			
Seaside Rec Use Wkshp Sept 2013 522	9/26/13										1										
Seaside Rec Use Wkshp Sept 2013 524	9/26/13										1										
Seaside Rec Use Wkshp Sept 2013 534	9/26/13										1										
Seaside Rec Use Wkshp Sept 2013 538	9/26/13																1				
Seaside Rec Use Wkshp Sept 2013 539	9/26/13	1																			
Seaside Rec Use Wkshp Sept 2013 546	9/28/13										1										
Seaside Rec Use Wkshp Sept 2013 624	9/28/13	1																			
Seaside Rec Use Wkshp Sept 2013 629	9/28/13	1																			
Seaside Rec Use Wkshp Oct 2013 633	10/3/13																		4		
Seaside Rec Use Wkshp Oct 2013 639	10/3/13										1										
Seaside Rec Use Wkshp Oct 2013 640	10/3/13	1																			

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Oct 2013 642	10/3/13										1										
Seaside Rec Use Wkshp Oct 2013 644	10/3/13										1										
Seaside Rec Use Wkshp Oct 2013 652	10/3/13											2									
Seaside Rec Use Wkshp Oct 2013 653	10/3/13																		2		
Seaside Rec Use Wkshp Oct 2013 654	10/3/13	1																			
Seaside Rec Use Wkshp Oct 2013 656	10/3/13	1																			
Seaside Rec Use Wkshp Oct 2013 668	10/3/13	1																			
Seaside Rec Use Wkshp Oct 2013 669	10/3/13																		1		
Seaside Rec Use Wkshp Oct 2013 671	10/3/13	1																			
Seaside Rec Use Wkshp Oct 2013 672	10/3/13	2																			
Seaside Rec Use Wkshp Oct 2013 682	10/3/13										1										
Seaside Rec Use Wkshp Oct 2013 683	10/3/13										1										
Seaside Rec Use Wkshp Oct 2013 684	10/3/13										2										
Seaside Rec Use Wkshp Oct 2013 686	10/3/13										2										
Seaside Rec Use Wkshp Oct 2013 687	10/3/13										4										
Seaside Rec Use Wkshp Oct 2013 688	10/3/13	1																			
Seaside Rec Use Wkshp Oct 2013 692	10/3/13										4										
Seaside Rec Use Wkshp Oct 2013 693	10/3/13										2										
Seaside Rec Use Wkshp Oct 2013 694	10/3/13										1					1					
Seaside Rec Use Wkshp Oct 2013 695	10/3/13	1																			
Seaside Rec Use Wkshp Oct 2013 697	10/3/13										1										
Seaside Rec Use Wkshp Oct 2013 744	10/3/13																		2		
Seaside Rec Use Wkshp Oct 2013 747	10/3/13	1																			
Seaside Rec Use Wkshp Oct 2013 749	10/3/13	1																			

APPENDICES

Photo ID	Flight Date	Indeterminable Recreational Use	Boating For Hire (Charter) Uses						Recreational Fishing Uses						General Recreational Uses - Non-Consumptive						
			Charter Fishing	Charter Diving/Snorkeling	Charter Party Cruises	Charter Wildlife Viewing	Charter Scenic Viewing	Charter Transport	Recr. Kayak & Non-Motorized Vessel Fishing	Rec. Dive Fishing	Rec. Fishing from Motorized Vessels	Rec. Shore Fishing	Rec. Shellfish Harvesting	Rec. Waterfowl Hunting	Motorized Boating	Paddling	Sailing	Scuba/Snorkeling/Diving	Shore Use	Surface Water Sports	Swimming
Seaside Rec Use Wkshp Oct 2013 750	10/3/13										1										
Seaside Rec Use Wkshp Oct 2013 751	10/3/13	1																			
TOTAL		**216**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**235**	**20**	**0**	**0**	**531**	**36**	**6**	**0**	**1701**	**60**	**391**

Appendix G

Aerial Survey Flight Logs

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: Barbara Schuenke

Date: 8-19-12 Sunday

Take-off: 9:16 a.m.

Pilot: S. Adams

Land: 11:29 a.m.

WEATHER

Air Temp: 80s | Heat Index: | Cloud Cover: Partly cloudy | % Chance of Daytime Storms: ~~10-30%~~ 40%

Winds: ~~SSE 10-15 mph~~ NE 3 mph E 9-11

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:	~~10:21 AM~~ 9:56 am	High:	~~10:39 AM~~ 10:14 am	High:	~~10:26 AM~~ 10:01 am
Low:	~~4:29 AM~~ 4:14 pm	Low:	~~4:31 AM~~ 4:16 pm	Low:	~~5:07 AM~~ 4:52 pm
High:	~~10:44 PM~~ 10:18 pm	High:	~~11:07 PM~~ 10:36 pm	High:	~~10:49 PM~~ 10:23 pm
Low:	~~4:39 PM~~	Low:	~~4:41 PM~~ 4:09 am	Low:	~~5:17 PM~~

Ches. Bay Bridge Tunnel Fisherman's Pt		Virginia Beach		False Cape	
High:	~~10:39 AM~~ 10:14 am	High:	~~10:07 AM~~ 9:36 am	High:	~~9:52 AM~~ 9:21 am
Low:	~~4:24 AM~~ 4:13 pm	Low:	~~3:59 AM~~ 3:42 pm	Low:	~~3:47 AM~~ 3:32 pm
High:	~~10:54 PM~~ 10:28 pm	High:	~~10:21 PM~~ 9:48 am	High:	~~10:06 PM~~ 9:33 pm
Low:	~~4:43 PM~~	Low:	~~4:17 PM~~	Low:	~~4:07 PM~~

NOTES

Weather deteriorated throughout morning.

Completed flight over all E.S. seaside but turned back at CBBT because of large T-storm approaching.

Most boat traffic at Queen Sound ramp.

Light use throughout. Maybe a few commercial clam boats but mostly recreational anglers

a couple of kayaks

no surfers

Folks on Assateague Beach

Very high tide - most of marshes covered with some H_2O.

APPENDICES

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: Barbara Schwenk

Date: 8/23/12 Thursday

Take-off: 9:10

Pilot:

Land: 11:50

WEATHER

Air Temp: 77	*Heat Index:*	*Cloud Cover:* partly	*% Chance of Daytime Storms:* 20%
Winds: N/NE 8 - 11 mph			Hazy

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:	2:15 am	High:	12:56 am	High:	12:43 am
Low:	9:13 am	Low:	7:05 am	Low:	7:41 am
High:	2:51 pm	High:	1:32 pm	High:	1:19 pm
Low:	10:33 pm	Low:	7:55 pm	Low:	8:31 pm
Ches. Bay Bridge Tunnel		**Virginia Beach**		**False Cape**	
High:		High:	12:11 am	High:	
Low:		Low:	6:23 am	Low:	6:13 am
High:		High:	12:52 pm	High:	12:37 pm
Low:		Low:	7:17 pm	Low:	7:01 pm

Franklin City

NOTES

Cloudy 77° 9:00 am.

Can't fly over Lynnhaven-Oceana AB

CBBT 2 Beaks + MHL 11

Can't photograph VABCH parachute

2 surfers

1 person on SP Beach (South of VABCH)

Red flags up.

APPENDICES

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: Barbara Schwerne

Date: 8/30/12 Thursday.

Take-off: 9:35 am

Land: 11:40 am

Pilot: SID ADAMS

WEATHER

Air Temp:	80	Heat Index:	—	Cloud Cover:	partly high cum	% Chance of Daytime Storms:	0

Winds: 2+

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:	8:08 pm	High:	8:26 pm	High:	7:44 am
Low:	1:56 am	Low:	1:58 am	Low:	2:39 pm
High:	7:39 am	High:	7:57 am	High:	8:13 pm
Low:	2:01 pm	Low:	2:03 pm	Low:	2:34 am
Ches. Bay Bridge Tunnel		**Virginia Beach**		**False Cape**	
High:	8:38 pm	High:	7:50 pm	High:	7:35 pm
Low:	1:56 am	Low:	1:23 am	Low:	1:13 am
High:	8:18 am	High:	7:29 am	High:	7:14 am
Low:	2:10 pm	Low:	1:37 pm	Low:	1:27 pm

NOTES

left ACA - Cedar Island — Clear - scattered cum cloud

Gargatha Inlet 2 Commercial

Wallops 1 Com "

10:15 Chincoteague Beach

Wallops

Cedar Chapeague

Quinby - out across bay

past Revell → back to Cedar

Upshur's Neck

Machipongo River

Willis Wharf

Hog Island bay to

Oyster

Nagorna

Wise Point

Fisherman's Island back to North 11:25 am

over →

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

mi 217 ~~236~~
x 2
185 mi
37 mi

Seaside Recreational-Use Survey Flight Log

Surveyors: Barbara Schwenk

Date: 9/1/12 Saturday

Take-off: 1 00 pm

Time 12 30 - 430

Pilot: Syd Adams

Land: 4 07 pm

WEATHER

Air Temp:	Heat Index:	Cloud Cover:	% Chance of Daytime Storms:
86°	93	hazy light low cloud cover ceiling	20

Winds: NW 8 mph

- light rain part of trip

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:	9:33 pm	High:		High:	
Low:	3:17 am	Low:	3:19 am	Low:	3:55 am
High:	9:10 am	High:	9:28 am	High:	9:15 am
Low:	3:33 pm	Low:	3:35 pm	Low:	4:11 pm
Ches. Bay Bridge Tunnel		**Virginia Beach**		**False Cape**	
High:		High:		High:	
Low:	3:19 am	Low:	2:46 am	Low:	2 36 am
High:	9:44 am	High:	857 am	High:	8 42 am
Low:	3:43 pm	Low:	3:10 pm	Low:	3 00 pm

NOTES

started to north because of weather. line near Wallops - get that first then south
east over Cedar - 2 boats
lots of activity at Gargatha
Tom Cove much!
Chincoteague Channel much
called Chinco Bay (Tom's Cove to W. side of Chinco)
northern Chinco (1)
Wachapreague
Dawson Shoals Wachapreague
Willis Wharf Cy
spider over Ramshorn ~~Bay~~ Channel
Bay Cop Island So.
oyster channel
CBBT
Tyndall Inlet
down south
up CBBT

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: Barbara Schwenk

Date: 9/6/12 Thursday

Take-off: 9:50

Pilot: SID ADAMS

Land: 10:10 am

WEATHER

Air Temp: 84°	*Heat Index:* 88°	*Cloud Cover:* low	*% Chance of Daytime Storms:* 50%
Winds: SW 15 mph			

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:		High:		High:	12:20 am
Low:		Low:		Low:	7:10 am
High:		High:		High:	12:49 pm
Low:		Low:		Low:	7:56 pm
Ches. Bay Bridge Tunnel		**Virginia Beach**		**False Cape**	
High:	12:17 am	High:		High:	
Low:	6:19 am	Low:	5:51 AM	Low:	5:41 AM
High:	12:46 pm	High:	12:19 pm	High:	12:04 pm
Low:	7:10 pm	Low:	6:45 pm	Low:	6:35 pm

NOTES

To: Virginia Beach only

very bumpy

cleared up as we went south

CBBT
Cylnhaven
VA BCH
NC

10:10 am Inlet (S shore only) Oceana
Oceana 25 to keep away by 1 miles.

T-storms to North at Wallops - got back to airport just before storm hit.

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: Barbara Schwenke

Date: 9-9-12 Sunday 830

Take-off: 9:45

Pilot: Mark Hill

Land: 12:25

WEATHER

Air Temp: 21 C	Heat Index:	Cloud Cover: Low scud Cleared up	% Chance of Daytime Storms:

Winds:

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:	2:45 am.	High:	3:03 am	High:	2:50 am
Low:	9:03 am	Low:	9:05 am	Low:	9:41 am
High:	3:27 pm	High:	3:45 pm	High:	3:32 pm
Low:	10:01 pm	Low:	10:03 pm	Low:	10:39 pm
Ches. Bay Bridge Tunnel		**Virginia Beach**		**False Cape**	
High:	2:46 am	High:	2:23 am	High:	2:08 am
Low:	8:52 am	Low:	8:21 am	Low:	8:11 am
High:	3:23 pm	High:	2:57 pm	High:	2:42 pm
Low:	9:55 pm	Low:	9:34 pm	Low:	9:24 pm

NOTES

Cedar Island/Wachapreague Inlet
N to Wallops (behind Island)
over Chincoteague Bay to MD. line
S along Beach at Assateague + Wallops IS.
over Gargatha Inlet
Wachapreague
Quinby – out over LOBBIS. to
→ Wills Wharf
Oyster
Wise Point
CBBT
Lynnhaven
Chix Beach
around Point Henry
South along VA Bch to
NC line + back

APPENDICES

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

~ 130 photos

Seaside Recreational-Use Survey Flight Log

Last flight for now

Surveyors: Barbara Schwenk

Date: 9-22-12

Take-off: 10:05 am

Pilot: Sid Adams

Land: 11:40

WEATHER

Air Temp: 74°F	*Heat Index:*	*Cloud Cover:* 0	*% Chance of Daytime Storms:* 0
Winds: SW ~15 mph			

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:		High:		High:	1:23 am
Low:		Low:		Low:	8:20 am
High:		High:		High:	2:04 pm
Low:		Low:		Low:	9:22 pm
Ches. Bay Bridge Tunnel		**Virginia Beach**		**False Cape**	
High:	1:26 am	High:	12:57 am	High:	12:42 ~~pm~~ am
Low:	7:34 am	Low:	7:07 am	Low:	6:57 am
High:	2:06 pm	High:	1:38 pm	High:	1:23 pm
Low:	8:38 pm	Low:	8:11 pm	Low:	8:01 pm

NOTES

Smith CBBT

VABCH

Beautiful clear day but windy & bumpy

lots of fishing boats

Lynnhaven Inlet

Some people on beach + some campers at False Cape SP on beach

Surfers at VABCH + Smith

Hundreds of dolphins

Many kayakers

Lynnhaven Inlet esp. busy. – both motor boats + kayakers.

APPENDICES

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: Susan Sun

Date: 6 July 2013

Take-off: 10:55

Pilot: Mark Hill

Land: 12:55

WEATHER

Air Temp: 88F *Heat Index:* *Cloud Cover:* Few *% Chance of Daytime Storms:* <20%

Winds: 260° @ 8kt/h

TIDES

Chincoteague Channel (S end)		Great Machipongo Inlet		Smith Island USCG Station	
High:	7:26A	High:	7:52A	High:	7:39A
Low:	1:58A	Low:	2:07A	Low:	2:40A
High:	7:56P	High:	8:22P	High:	8:09P
Low:	1:39P	Low:	1:48P	Low:	2:21P
Ches. Bay Bridge Tunnel		**Virginia Beach**		**False Cape**	
High:	7:52A	High:	7:16A	High:	7:00A
w:	1:51A	Low:	1:34A	Low:	1:09A
High:	8:10P	High:	7:32P	High:	7:21P
Low:	1:38P	Low:	1:05P	Low:	12:57P

NOTES

Weather was clear, some scattered clouds

Could not fly up to Chincoteague/Wallops

airspace was "hot"

~10 surfers, few kayaks

Pilot counted 286 recreational

Most boats just outside CBBT

Lots of sunbathers @ Virginia Beach

Saw/photographed 2 parasails

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: [illegible]

Date: 7/27

Take-off: 1040

Pilot: Mark Hill

Land: 1:00

WEATHER

Air Temp: 86 | *Heat Index:* | *Cloud Cover:* Few | *% Chance of Daytime Storms:*

Winds:

TIDES

Chincoteague Channel (S end)	Great Machipongo Inlet	Smith Island USCG Station
High: 12:00AM	High: 12:27A	High: 12:14A
Low: 6:21 AM	Low: 6:40 A	Low: 7:13A
High: 12:29PM	High: 12:57	High: 12:44P
Low: 6:52PM	Low: 7:07	Low: 7:40P
Ches. Bay Bridge Tunnel	**Virginia Beach**	**False Cape**
High:	High:	High:
w:	Low:	Low:
High:	High:	High:
Low:	Low:	Low:

NOTES

Some scattered clouds, mostly clear but some cumulus in dist
We were able to fly up to Wallops/Chincot. Spotted 2+(?) kayaks, 3 parasails, numerous surfers & body surfers. Lots of recreational boats out today. Two low flying (recreational?) planes were skimming the beach of one of the islands (took some pics of the planes. Pilot counted ~124 boats. Lots of sun-bathers on the beaches @ Virginia Beach, Assateague

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: S. Simon

Date: 5 Sept 13

Take-off: 12:24 PM

Pilot: Mark Hill

Land: 2:40 PM

WEATHER

Air Temp: 75F *Heat Index:*

Cloud Cover: Clear

% Chance of Daytime Storms: Low - Mod (?)

Winds: @1000 Ft calm

Gorgeous Day. Bit a bit windy towards the end of flight

TIDES

Chincoteague Channel (S end)	✓ Great Machipongo Inlet	✓ Smith Island USCG Station
High:	High: 9:02 AM	High: 8:49 AM
Low:	Low: 2:51 AM	Low: 3:24 AM
High:	High: 9:25 PM	High: 9:12 PM
Low:	Low: 3:04 PM	Low: 3:37 PM

✓ Ches. Bay Bridge Tunnel	✓ Virginia Beach	False Cape
High: 8:48 AM	High: 8:13 AM	High:
.w: 2:28 AM	Low: 2:04 AM	Low:
High: 9:01 PM	High: 8:23 PM	High:
Low: 2:47 PM	Low: 2:18 PM	Low:

NOTES No Wallows today - area was "hot"

CG, and buoy tender

Saw lots of ray at the surface of the H_2O

Canal boat c scuba diver

~ 2-3 parasails, sailboat

Some kayakers, not many people on the beaches today

APPENDICES

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: Susan Sin

Date: 9/26/13

Take-off: 3:30PM

Pilot: Mark Hill

Land:

WEATHER

Air Temp: 70 | Heat Index: | Cloud Cover: Scattered Clouds | % Chance of Daytime Storms: Weather report did not call for rain

Winds:

TIDES

Chincoteague Channel (S end)	Great Machipongo Inlet	Smith Island USCG Station
High:	High: 2:38A	High: 1:31A
Low:	Low: 8:42A	Low: 8:21A
High:	High: 3:29P	High: 2:06P
Low:	Low: 9:40P	Low: 9:18P
Ches. Bay Bridge Tunnel	**Virginia Beach**	**False Cape**
High:	High: 12:52A	High:
w:	Low: 6:54A	Low:
High:	High: 1:21PM	High:
Low:	Low: 8:04PM	Low:

NOTES Left from West Point, VA Middle Peninsula Airport Flew to VA/NC border and headed N

Got "pinged" c radar near Oceana. Had to stick near the beach as we headed N. Traced beach @ 500 ft.

Blue menhaden boat c 2 smaller boats in net circle.

Busy air traffic control tracking today - Had to stick closer to the beach

Couldn't go near Wallops

APPENDICES

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Surveyors: S Sim

Date: 9/28 (Saturday)

Take-off: 10:30A

Pilot: Mark Hill

Land: 1:27P

Counted 49

WEATHER

Air Temp: 22°

Heat Index:

Cloud Cover: Broken @ 2000 ft Forecast

% Chance of Daytime Storms:

Winds:

TIDES

Chincoteague Channel (S end)	Great Machipongo Inlet	Smith Island USCG Station
High: 3:13AM	High: 3:38A	High: 3:25A
Low: 9:35AM	Low: 9:38A	Low: 10:11A
High: 3:48PM	High: 4:16P	High: 4:03P
Low: 10:20PM	Low: 10:34P	Low: 11:07P
Ches. Bay Bridge Tunnel	**Virginia Beach**	**False Cape**
High:	High: 2:52A	High:
Low:	Low: 8:51A	Low:
High:	High: 3:17P	High:
Low:	Low: 9:59P	Low:

NOTES Lots a White caps - possible small craft advisory

GPS stopped capturing just ~ 1 hr battery - Sw. pic taken at Wallops/Chincoteague S GPS

Pic # 9666 pattern out at Sea just S of Wallops

GPS still not working

Pix 9667 - GPS working again (barge & tow boat)

Starting to get windy @ 11:40AM

Lots of sailboats just S of Tangier Island

Took a pretty break @ Cuckold Creek @ 12:10; took off again @ 12:24P

Pix taken @ 12:58 is the tug & tow that I took earlier

Virginia Coastal Zone
MANAGEMENT PROGRAM

A-NPDC

Seaside Recreational-Use Survey Flight Log

Dolphins
3701 15
7603
48

Surveyors:

Date: 10/3/13
Take-off: 11:25A
Land: 1:51P

Pilot: Mark Hill

Whales 365615 W07600
Dolphin 365424 W07553.63

WEATHER

Air Temp: | *Heat Index:* | *Cloud Cover:* | *% Chance of Daytime Storms:*

Winds:

2-3 pods 363379 W07551.86

TIDES

Chincoteague Channel (S end)	Great Machipongo Inlet	Smith Island USCG Station
High:	High: 7:49A	High: 7:36A
Low:	Low: 1:34A	Low: 2:07A
High:	High: 8:11P	High: 7:58P
Low:	Low: 1:55P	Low: 2:28P
Ches. Bay Bridge Tunnel	**Virginia Beach**	**False Cape**
High:	High: 6:59A	High:
w:	Low: 12:45A	Low:
High:	High: 7:12P	High:
Low:	Low: 1:09P	Low:

NOTES Heading ~~up~~ straight N to Wallops, if open

@ 9632 Shot pic of boat that was empty & there was a person on the beach c 5 dogs

Kayaker @ 3641.99 W07554.84

#9602 N3732.77 W07548.62 GPS not working on that pic.
(coming up inland ~ 12 miles S of Acc airport)