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

Virginia Coastal Zone MANAGEMENT PROGRAM

Virginia's Eastern Shore A-NPDC

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NOAA

May, 2015
Accomack-Northampton Planning District Commission
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This project was funded by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA11NOS4190122 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

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PART I - FORWARD

The Eastern Shore of Virginia's undeveloped seaside environs are unmatched along the east coast, earning the United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Biosphere Reserve designation. The 75-mile coastline includes thousands of acres of pristine salt marshes, vast tidal mudflats, shallow lagoons, and navigable tidal channels that support thriving seafood and recreational tourism industries, bound on the east by once partially-occupied, but now largely undeveloped, barrier islands.

A film documentary trilogy by the Barrier Islands Center in Machipongo was made specifically to document life on the barrier islands while there are still people alive who remember what it was like to live there, and to capture the legacies of dwindling numbers of bird decoy carvers and commercial fishermen. The films highlight the resolute spirit of those who make their livings by the natural bounty of the sea and it surrounds, and the strong family traditions and community ties they forge. These craftsmen and watermen have long been guides to visitors drawn to their humble seaside towns –and at one time barrier island villages - to hunt and fish in environments teeming with wildlife and waters abundant with trophy catches.

The Commercial and Recreational Use Assessment Reports document that legacy in a different way: by establishing a baseline data for commercial and recreational uses in the nearshore, inshore, and offshore zones off the Eastern Shore of Virginia. The commercial report utilizes data from the Virginia Marine Resources Commission (VMRC), the Greater Atlantic Regional Fisheries Office, and the Mid-Atlantic Regional Council on the Ocean (MARCO), supplemented by surveys of commercial fishermen. The recreation report analyzed and compiled existing recreational-use data, solicited key stakeholder information via a participatory Geographical Information Systems (GIS) workshop, and conducted aerial surveys during expected times of peak recreational use.

Some commercial fishing activities surely resemble those of the earliest seafood harvesters on the Shore: harvesting wild-grown clams and oysters; using nets to corral or hoist catches from the sea; or baiting and setting traps. Others employ sophisticated radar and sonar technology aboard large vessels that ply the ocean depths with ease. Gear type, species landings, water body, month/season, and landside infrastructure were some of the information sets gathered and examined in the Commercial Use Assessment Report (Part II of this compiled report) in an attempt to characterize general activity and isolate specific patterns that could provide insight into possible conflicts commercial fishermen encounter.

The commercial fishing data reflect widespread usage of the inshore and nearshore areas of the entire length of the Eastern Shore seaside, with concentrations at the northern end,

generally encompassing the Chincoteague Bay-Assateague Island area, and the southern seaside from about Cedar Island southward. Unlike the Communities at Sea maps, the measure for inshore and nearshore activity is based on pounds and value, with shellfish heavily weighting the view.

To supplement those data sets, VMRC permit holders were sent surveys seeking input about potential conflicts, and asking them to directly identify their geographic range of activity. Of 37 fishermen who responded to the survey, 12 said they experienced no conflicts at all. Those at the northern end of the Eastern Shore were more likely to report conflicts, which is also where there was a high concentration of commercial fishermen, both under state and federal permits. And sometimes the conflicts they reported were not ones that would have been picked up from other data, such as the range closures for rocket launches at Wallops Flight Facility.

What might have seemed a likely source of interference – recreational boaters and fishers – garnered only six of 37 complaints from commercial fishermen, but they seemed to be more of an issue for gill net fishermen who were more active on the seaside of the barrier islands.

That pattern is consistent with where the recreational activity was found during the recreational seaside assessment, which found the "shore use" – barrier island visitation – the top recreational use, with Assateague Island receiving three times as many observations as any other observed location on the seaside.

Data for the Recreational Use Assessment Report (Part III of this compiled report) was gathered through a 44-participant stakeholder workshop, utilizing participatory GIS to identify and map 22 distinct recreational and cultural uses. Aerial photographs produced specifically for this project provided supplementary data, particularly regarding which areas received the most use during peak times. Fourteen aerial surveys of the seaside during peak times of recreational use resulted in over 2,000 photographs of 10 different recreational use types.

In general, the majority of the recreational uses were 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.

The most intensely used area was Assateague Island and the Chincoteague Inlet vicinity, which were reported and observed as being the most popular places for recreational use, including 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 Seaside Special Area Management Planning (SAMP) team and 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 and commercial use data to provide for appropriate marine spatial planning and in turn, reduce marine use conflicts, maximize use efficiency, and enhance environmental and economic productivity.

Taken together, these combined reports present a comprehensive data set for recreational use and commercial fishing and harvesting in the inshore, nearshore and offshore areas of the Eastern Shore seaside areas, and a baseline understanding of how humans use the ocean and its nearshore environs, and where those uses overlap to form areas of conflict or potential conflict.

Part II – Commercial Use Assessment

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Eastern Shore of Virginia Seaside Commercial Use Assessment Report

MAY, 2015

Prepared For:

Virginia Coastal Zone Management Program

Virginia Department of Environmental Quality

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GRANT YEAR 2012, TASK NUMBER 96

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

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Photo: Wading clams near Chincoteague. Photo courtesy of Nancy Richards West. Used with permission. All rights reserved.

Executive Summary

A 2014 documentary, "Watermen," produced by the Barrier Islands Center in Machipongo, captured the experiences of watermen-and their families and communities - to preserve a legacy of generations of commercial fishing on the Eastern Shore of Virginia. This report documents that legacy in a different way: by identifying the geographic extent, intensity, and breadth of commercial fishing and other commercial harvesting in the ocean (nearshore and offshore) and the seaside waters between the mainland and barrier islands of Virginia's Eastern Shore (inshore). It is part of a larger ocean planning effort undertaken by the Seaside Special Area Management Planning (SAMP) team, which includes the Marine Resources Commission, the Accomack-Northampton Planning District Commission (A-NPDC), The Nature Conservancy, the Virginia Institute of Marine Science, and the Virginia Coastal Zone Management Program.

The report includes a baseline dataset for defining where commercial fishing occurs on the Seaside of Virginia's Eastern Shore, including data from the Virginia Marine Resources Commission (VMRC), the Greater Atlantic Regional Fisheries Office (GARFO), the Mid-Atlantic Regional Council on the Ocean (MARCO), and first-hand information obtained through interviews and surveys with local watermen.

The data document fishing grounds along the entire coastline – inshore, nearshore, and offshore - that are important not only to the livelihoods of more than 200 Eastern Shore watermen, but to both the Virginia and Mid-Atlantic commercial fisheries. Inshore areas and nearshore barrier islands show great intensity because of the variety of uses spanning nets, pots and traps, crab pots, and shellfish grounds.

MARCO's Communities at Sea maps were verified by both local watermen and itinerant fishermen in port at Chincoteague as being overall good representations of where fishing occurs, with a few notations made for further examination by the Communities at Sea mapping team.

VMRC landings data by water body proved valuable for examining the location and intensity of use for inshore areas, although confidentiality concerns precluding the examination of this data by month to determine whether uses might be more –or less - intense in any given season.

Thirty-seven surveys returned by VMRC permit holders provided first-hand information on conflicts and areas of gillnet and crab pot use. Conflicts with other commercial fishermen were cited ten times, and range closures for rocket launches at the NASA Wallops Flight Facility were mentioned nine times as sources of conflict. Also mentioned were recreational (seven times), environmental and governmental (four), and legislative/policy conflicts (three). Temporal patterns identified included summer months and regulatory requirements such as open and close of species seasons.

While this report includes a robust set of baseline data for commercial fishing along the coast of Virginia's Eastern Shore, the following recommendations would help supplement understanding of this work:

- Further investigation into commercial seaside fishing activities should consider vertical profiles of inshore areas and seasonal fishing patterns to provide a better understanding of conflicts.

- Conflicts with other commercial fishermen were cited ten times. There do not appear to be additional measures need to understand the nature of the conflicts, and no further study is recommended.
- Launch range closures were also cited ten times, sometimes with impassioned language about the financial difficulties incurred, especially when launches are delayed and there are multiple closures within a short span. As the Communities at Sea Maps indicate, areas subject to closures are important to fishermen beyond the Eastern Shore. Further investigation could provide more insight into the financial implications of range closures for Virginia fishermen.
- Additional planning efforts may be needed in areas where intense commercial and recreational uses were identified. Both studies identified intense uses in the vicinity of Chincoteague Inlet and its adjacent water bodies. A focused planning effort in this area or other similar intensely used areas should incorporate the broad array of stakeholders utilizing the area to develop more site-specific baseline datasets which could be used to assist with developing site-specific strategies for reducing ongoing use conflicts and enhancing existing uses.
- Environmental, governmental, and legislative/policy conflicts were few and diffuse. However, it is recommended that environmental, regulatory and policy activities continue to consider potential impacts upon commercial uses by engaging commercial users during any development process.

Photo: Unloading scallops at Chincoteague Fisheries Co-op.

Chapter 1: Introduction

Fishing sustained humans on the Eastern Shore of Virginia long before Europeans established permanent settlements there. Powhatan Indian diets were based around food availability in five culturally-defined seasons, and during the early to mid-spring season of *cattapeuk,* Powhatans relied heavily on migrating fish and cultivated crops.[1] Abundant finfish and shellfish were harvested from adjacent water bodies of the Atlantic Ocean and Chesapeake Bay using nets and weirs to nourish communities that moved to follow the seasonal availability of food, with the added benefit of making their mobile communities less susceptible to disease.[2]

However, once European settlements gained a permanent foot-hold in the region, fishing took on a more prominent role, at first as a regular component of permanent settlers' diets, and eventually, as a mainstay in the regional economies. The "1928 Report of the Commission to Investigate and Survey the Seafood Industry of Virginia" found that approximately 100,000 persons' occupations depended in some way upon commercial fisheries, with more than 30,000 individuals entirely dependent the industry.[3]

Even so, fishing employment was barely noticeable within the context of statewide employment data, but it was significant to coastal counties. For example, in 1950, fishermen accounted for less than one percent of all statewide employment, but that same year, fishermen constituted 30 percent of all employment in Northampton County.

Employment is not the only measure of the importance of fishing to the Eastern Shore way of life. Regional cultural practices, rituals, victuals, and family traditions have absorbed seaside rhythms, and their inherent dangers, beauty, and bounty, romanticizing the profession, even as its numbers dwindle. A 2014 documentary, "Watermen," produced by the Barrier Islands Center in Machipongo, captured the experiences of watermen - and their families and communities - to preserve their legacy.

This report documents that legacy in a different way: by assembling existing data sources, and supplementing those with surveys of commercial fishermen conducted via U.S. mail, to provide baseline data of the geographic extent, intensity, and breadth of commercial fishing and other commercial harvesting in the ocean and the seaside waters between the mainland and barrier islands of Virginia's Eastern Shore.

1.1 Relationship to Recreational Use Study

The Accomack-Northampton Planning District Commission (A-NPDC) undertook a study of commercial fishing on the seaside of the Eastern Shore of Virginia as part of a larger ocean planning effort undertaken by the Seaside Special Area Management Planning (SAMP) team, which includes the Marine Resources Commission, A-NPDC, The Nature Conservancy, the Virginia Institute of Marine Science, and the Virginia Coastal Zone Management Program.

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[1] Encyclopedia of Virginia, Virginia Foundation for the Humanities, www.encyclopediavirginia.org

[2] Ibid

[3] Kirkley, James, "Virginia Commercial Fishing Industry: Its Economic Performance and Contributions," Virginia Institute of Marine Science, 1997.

The Recreational Use Assessment Report for Virginia's Eastern Shore seaside, published in May, 2014, can be viewed as a companion to this commercial use report. Both reports incorporated user self-reporting through participatory GIS, along with observations from other data sources to derive a baseline dataset. Rather than inferring potential conflicts by examining geographic overlap - the approach used in the recreational use study - the commercial use project directly surveyed commercial fishermen about conflicts they experience.

The project area for both reports covers the entire seaside of Virginia's Eastern Shore. This includes an approximately 75-mile coastline bound by 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 (Figure 1).

Together, the two studies provide a comprehensive representation of the seaside commercial and recreational uses for the Eastern Shore of Virginia, and a framework for marine spatial planning policy discussions.

1.2 Study Area

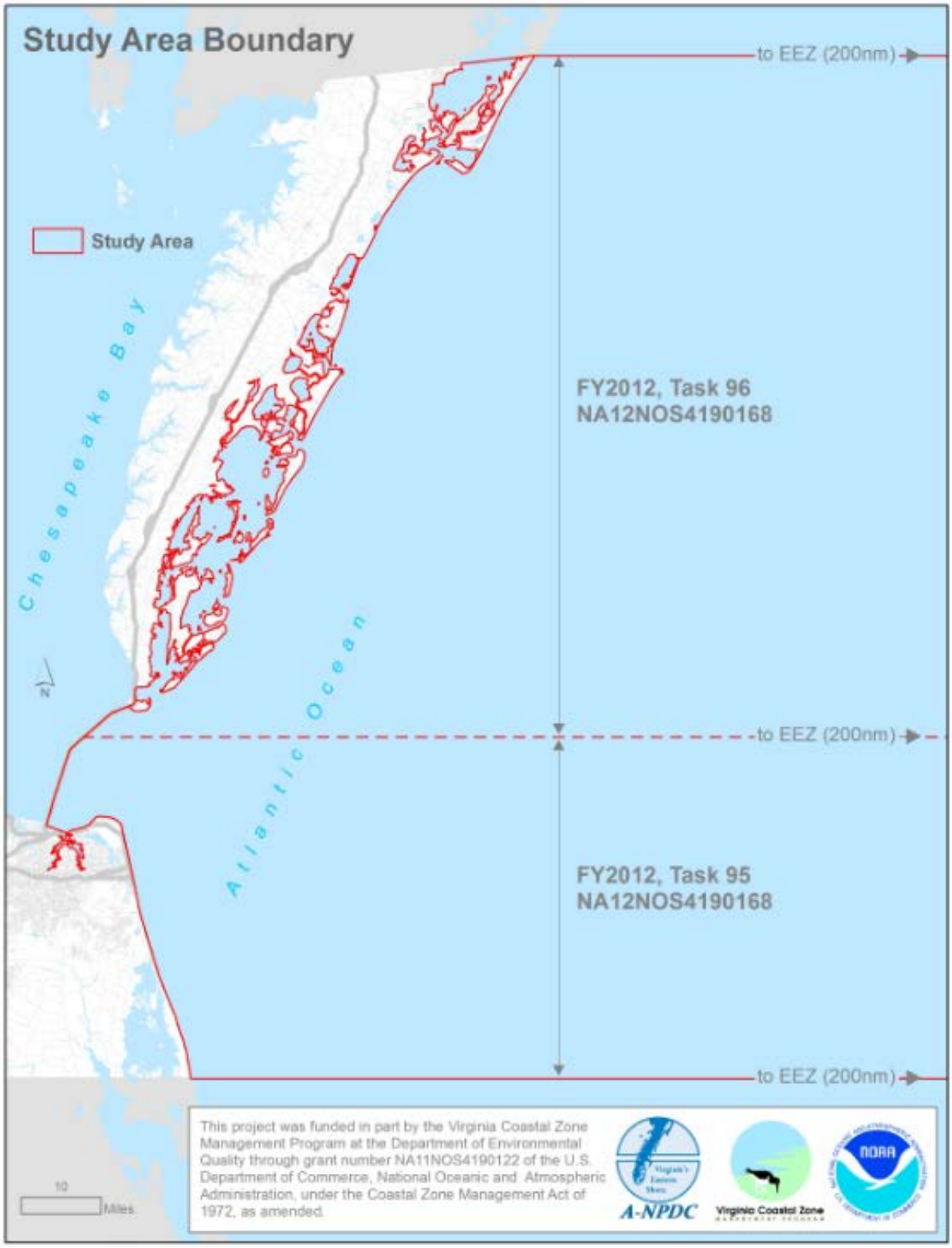
Specifically, the western boundary includes the tidal portion of the creeks on the mainland, and the southern boundary is an east-west line crossing the third island from the south of the Chesapeake Bay Bridge-Tunnel, on the south side of the tunnel under the Chesapeake navigation channel. The eastern boundary of the project area is the 200 nautical mile offshore exclusive economic zone boundary (Figure 1).

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 on the east by a barrier island chain that is largely undeveloped.

The entire area between the seaside and the barrier islands, stretching from Fisherman Island, which lies, in part, beneath a bridge span of the Chesapeake Bay Bridge-Tunnel, northward to Assateague Island National Seashore, is designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a World Biosphere Reserve.

Photo: Commercial fishing vessel in Chincoteague. Photo by Jessika Tripp. Used with permission. All rights reserved.

FIGURE 1: STUDY AREA BOUNDARY FOR THE COMMERCIAL AND RECREATIONAL USE ASSESSMENTS, TASKS 95 AND 96 UNDER VCZM FY2012 GRANT NUMBER NA12NOS4190168.



Chapter 2: Methods

2.1 Literature and Data Search

The literature search focused on three types of data as indicators of commercial ocean activity: licensing, landings, and infrastructure facilities.

LICENSING

The Virginia Marine Resource Commission (VMRC) requires licenses for commercial activities in the Chesapeake Bay and Virginia's portion of the Territorial Sea (waters within three nautical miles of the coastline). Licenses are issued to work within specific bodies of water, and a request was made to VMRC for licenses issued for fishing or harvesting on the seaside of the Eastern Shore, including inshore (between the mainland and barrier islands) and nearshore (the ocean side of barrier islands) waters.

As the licensing agency for oyster grounds, VMRC maintains official documentation of public oyster grounds ("Baylor Grounds"), private oyster grounds leased from the Commonwealth, applications for private grounds, and documentation of public clamming grounds.

The public has access to a geographic representation of these locations through the VMRC's map viewer at http://gis.mrc.virginia.gov/mapviewer, along with locations of certain other VMRC permits and marine information.

Since VMRC issues saltwater commercial harvest permits by water body, and also records water body on landings, a records request was made to VMRC for commercial landings by water body by species.

Photo: Commercial crab fishermen on the seaside. Photo by Gordon Campbell, At Altitude Photography. Used with Permission. All rights reserved.

Similarly, the Greater Atlantic Regional Fisheries Office (GARFO), a division of the National Oceanic and Atmospheric Administration, manages all living marine resources in the exclusive economic zone (EEZ) of the Atlantic Ocean from Cape Hatteras to Maine, including issuing the multi-species permit required for commercial finfish landings taken from the EEZ. These data were downloaded from the GARFO website.

Commercial Landings

Commercial landings refers to the weight and value of finfish and shellfish that are harvested. In Virginia, those data are reported to VRMC for Virginia waters, and to NOAA's National Marine Fisheries Service (NMFS) for federal waters. Requests were made to both VMRC and NOAA for commercial landings in Accomack and Northampton counties.

Infrastructure Facilities

Accomack and Northampton counties, and the towns of Chincoteague and Wachapreague, along with Virginia Department of Inland Game and Fisheries and the Eastern Shore of Virginia National Wildlife Refuge provided information about launch facilities that are used for commercial fishing and harvesting. These data were obtained through a combination of online publications, e-mail, and phone interviews. Only the Eastern Shore of Virginia National Wildlife Refuge was able to provide information about commercial launches from its facilities.

2.2 Identification of Commercial Fishing Areas

Ocean Planning and MARCO Communities at Sea

Numerous uses compete for the same space out on the water – and above and below its surface. Competition comes from every sector: recreational, commercial, energy production, and research; encompassing everything from commercial fishing to sand mining to wind energy.

There have been systems in place for at least a century to plan for and allocate land resources: systems that evolved into data-driven frameworks for policy analysis. That same principle is now being comprehensively applied to the oceans through ocean planning work.

Ocean planning for the mid-Atlantic region began with the Mid-Atlantic Regional Council on the Ocean (MARCO), an organization formed to address the shared regional priorities identified in the Mid-Atlantic Ocean Governors' Agreement on Ocean Conservation, signed in 2009 by the governors of Virginia, Maryland, Delaware, New Jersey, and New York. In that document they agreed to make offshore renewable energy, habitat protection, water quality and climate adaptation the group's priorities.

The following year, President Obama issued an executive order establishing a national ocean policy to protect and restore the nation's oceans and coasts. The policy called for the formation of regional planning bodies (Figure 2) to coordinate ocean planning work among federal, state, and tribal bodies, and in conjunction with fishery management councils. Since the mid-Atlantic region already had a framework in place, MARCO is assisting the Mid-Atlantic Regional Planning Body, which was established in April 2013, with its ocean planning work.

One of the products of the ocean planning work was Communities at Sea maps, which were developed using a methodology developed by Dr. Kevin St. Martin of Rutgers University, working closely with fishermen and leading fisheries social scientists. To produce these maps, large volumes of commercial fishing data for 2011-2013 were extracted from vessel trip reports (VTR),

and synthesized into maps to represent not only where fishermen were fishing, but where their fishing efforts were concentrated as expressed by man-hours.

FIGURE 2: REGIONAL OCEAN PLANNING BODIES

Some shortcomings of the VTR data include inaccuracies due to multi-day trips, lack of seasonal indicators of activity, and missing activity from fishing for species that do not required federal permits, such as croaker. However, the roughly 100,000 trips recorded per year from Maine to North Carolina – about 40,000 from mid-Atlantic states - provided a robust data set from which to create the maps and begin to examine regional fishing patterns.

Separate maps were produced by port and gear type. Vessels were associated with a particular port if the vessel landed at that port and either declared the port as his or her principal port, or the vessel landed in that port more than 50% of the time. The "rule of three" was used so that smaller ports used by fewer than three vessels, where an individual fisherman's confidential data might have been compromised, were grouped into "all Virginia ports."

To further protect confidentiality, data that were used in mapping were provided to the research team by the National Marine Fisheries Service free of any personal identifying information, such as the vessel name or the owner's name.

Once produced, the Accomack-Northampton Planning District Commission (A-NPDC) took the Community at Sea maps out to commercial fishermen to verify their accuracy. The team at Rutgers University put together an outreach toolkit (Appendix A) to guide engagement with fishermen along the coast of the entire mid-Atlantic region. While A-NPDC staff did not use town-hall meeting format upon which the toolkit is predicated, A-NPDC used toolkit questions to guide discussions, sometimes individually and sometimes in small groups.

The initial map review was held in Newport News in July, 2014 at VMRC offices. Later, several methods were employed to solicit input.

- Local fishermen with GARFO permits were contacted via telephone. If they agreed to review the maps, a meeting was arranged at their convenience.
- A visit was made to the dock at the Chincoteague Fisheries Co-Op when vessels were in port off-loading their catch.

- Maps were taken to other meetings where fishermen would be present.

Errors, or areas flagged by fishermen as questionable, were reported back to the Rutgers University team for further investigation. A summary of Eastern Shore fishermen reactions to the MARCO maps can be found in Appendix B.

Commercial Fishermen Surveys

A-NPDC obtained a list of 210 VMRC commercial permit holders for waters off of the Eastern Shore of Virginia, along with permit types, and addresses. The list was for permits as of January 2015, and permit holders were sent maps and a survey asking them to indicate the geographic extent of their work areas and whether they encountered conflicts in their work. If they indicated there were conflicts, they were asked to report the types of conflicts and whether there could discern seasonal or other temporal patterns. The survey was part of a larger survey that also included question about offshore wind energy. (The entire survey can be viewed in Appendix C).

Survey responses were compiled and conflicts grouped into seven categories: No conflict, other commercial fishermen, Wallops Flight Facility, recreational, environmental, other governmental (military, park service, and leased oyster grounds), and legislative/policy (conditions tied permits, such as season starts or time of day limits). Maps provided by fishermen were geocoded to specific water bodies to create maps of their activity.

Chapter 3: Results & Discussion

3.1 Literature and Data Search

Licensing

VRMC identified 210 current commercial permit holders as of January 2015, for seaside waters within three miles of the coastline of the Eastern Shore of Virginia. Permit types were crab pot; dredge, which are used for harvesting conch and a small number of horseshoe crabs; eel pot; fish pot; and gill net (Table 1).

Table 1: VMRC Permits by type for seaside waters under Commonwealth of Virginia jurisdiction, January 2015

January 2015 VMRC permits by type for seaside waters under Commonwealth of Virginia jurisdiction

Gear Type	Number of Permits
Crab Pot	116
Dredge	15
Eel Pot	4
Fish Pot	3
Gill Net	72
Total VMRC Permits	210

source: VMRC

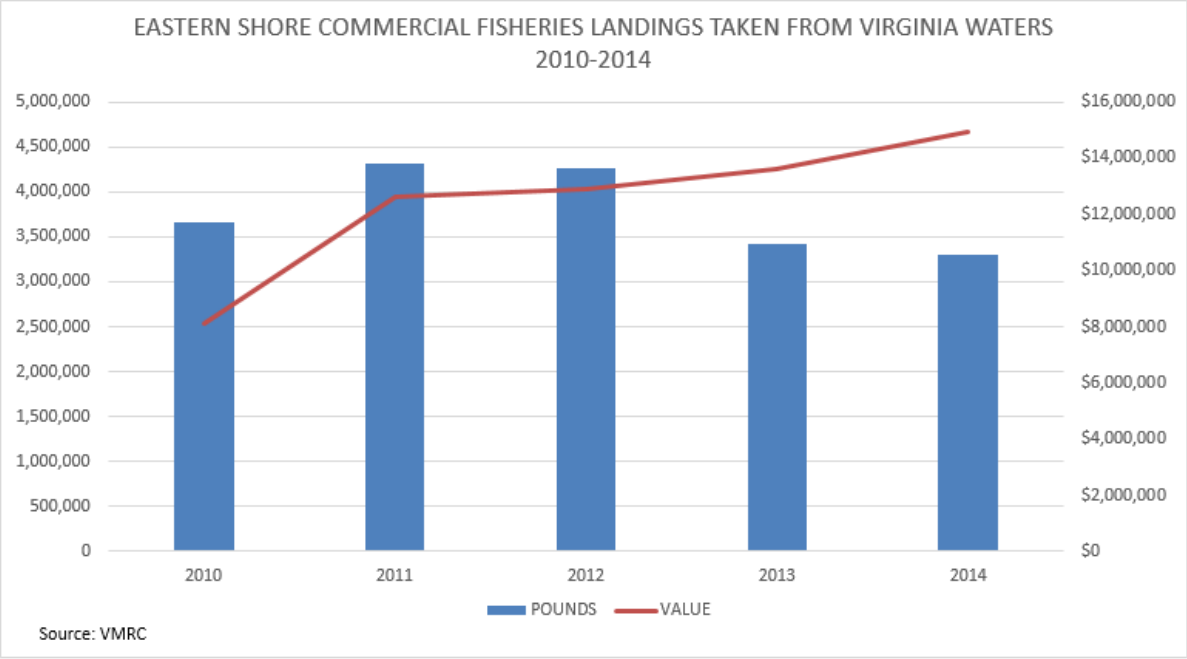
An online search of GARFO permits turned up 4,318 North Atlantic in November 2014. Unlike recreational users, who are likely to return home, or to their vacation rentals, after a day of ocean fishing, many commercial vessels that operate in the deep seas under GARFO permits remain at sea for extended periods, with a range that could encompass one state or the entire East Coast, making it hard to distinguish which of the vessels frequent offshore waters along Virginia's coast.

Sorting the data by principal port turned up 153 vessels with principal ports in Virginia; 32 of which are on the Eastern Shore, but some of these were charter captains, who were accounted for in the recreational use survey. Through phone calls to the contacts listed in the permits, 16 were confirmed to be commercial fishermen, another nine were confirmed to be charter captains, and it was undetermined whether the remaining seven were commercial fishermen or charter captains.

Commercial Landings

Figure 3 summarizes Eastern Shore commercial fisheries landings from Virginia waters for the years 2010 – 2014 in both pounds and value. After an initial rise in pounds landed, from 3.6 million pounds in 2010 to 4.3 million pounds in 2011 and 2012, landings dropped below 2010 levels for 2013 and 2014, to 3.4 and 3.3 million pounds, respectively. However, the value of landings has seen a steady increase, from $8.1 million in 2010 to $15 million in 2014. (A complete table of landings by species and by year and by found in Appendix D.)

Figure 3: Eastern Shore Commercial Fisheries Landings Taken from Virginia Waters



By groups of species – finfish vs. shellfish – the overall trend in shellfish landings increased over the five-year period, while the overall trend in finfish landings was downward (Figure 4).

Landings varied by month, reflecting the seasonal fish migration patterns and/or restrictions placed on permit holders. Generally peak landings in terms of both value and pounds were seen in May through August, as illustrated by Figure 5. One exception is the month of December,

which was the third lowest landing month by pounds, but ranked sixth out of the twelve months in landings value, driven almost entirely by clam harvests.

December, however, is not an aberration: on the whole, 77 percent of the value of Eastern Shore landings are attributable to clams ($11.6 million of $16 million total landings). A distant second are blue crabs, at $1.5 million, and oysters are third in landings value at just under $1 million. Although 17 other species are landed in the two counties, nothing else comes close in value to clam, crabs, and oysters, and although more spot is landed annually than oysters (133,640 lbs. to 123,599, respectively), spot brought $1.70 per pound in 2014, compared to $8.01per pound for oysters.

FIGURE 4: EASTERN SHORE COMMERCIAL FISHERIES, FINFISH VS. SHELLFISH

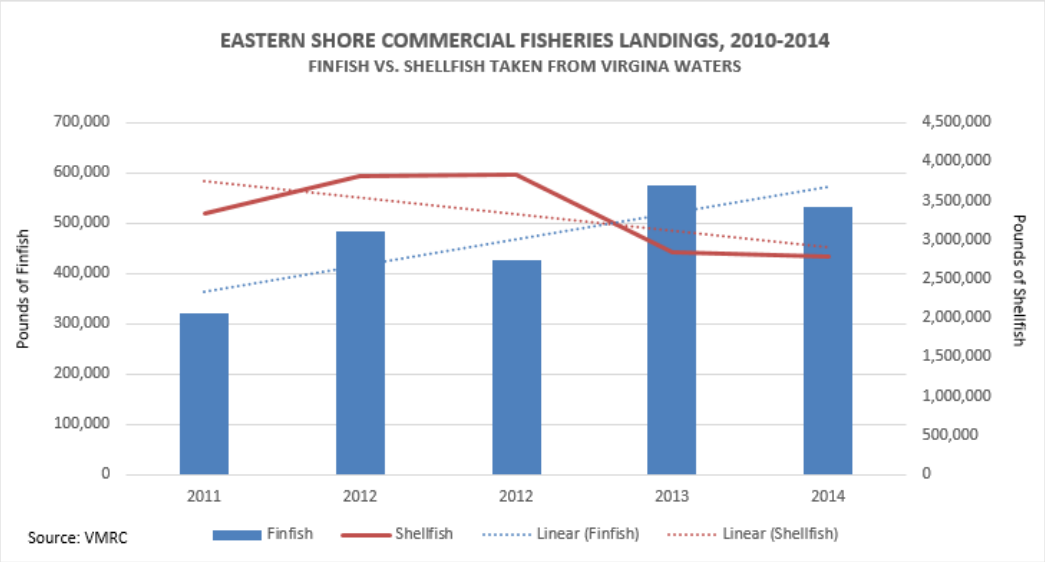


FIGURE 5: EASTERN SHORE COMMERCIAL FISHERIES- AVERAGE MONTHLY LANDINGS

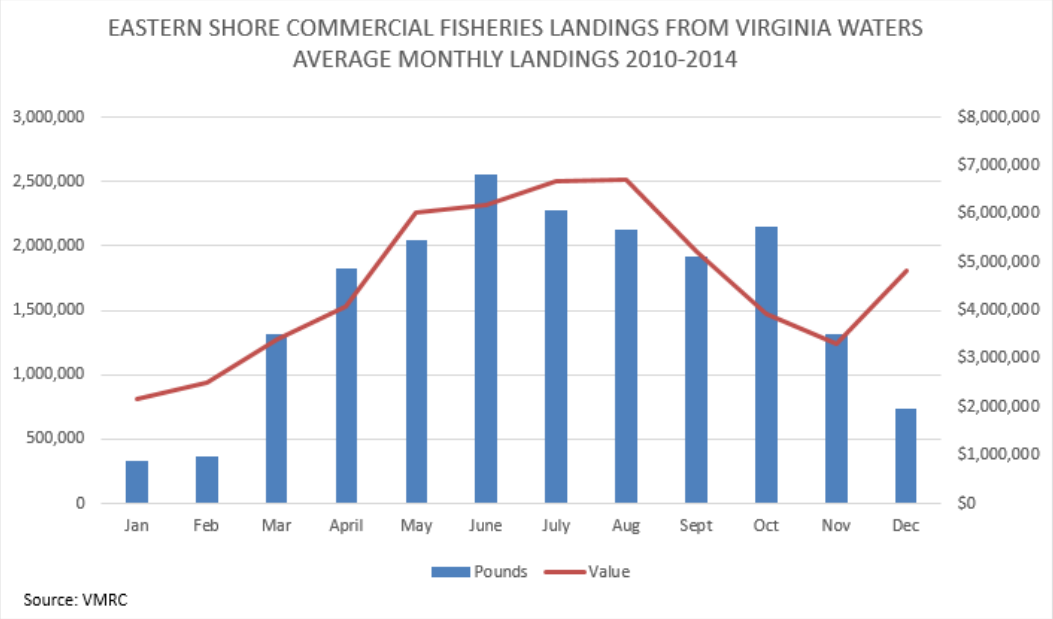


TABLE 2: EASTERN SHORE COMMERCIAL FISHERIES LANDINGS BY WATER BODY (2014)

Eastern Shore Commercial Fisheries Landings by Water Body (2014)

	POUNDS	VALUE
BOGUE BAY	23,491	$53,820
BRADFORD BAY	37,208	$61,575
BURTON BAY	57,053	$82,703
CHINCOTEAGUE BAY	650,152	$1,310,896
COBB BAY	11,483	$66,795
GARGATHY BAY	4,737	$25,895
HOG ISLAND BAY	498,534	$4,310,718
KEGOTANK BAY	4,352	$28,734
MAGOTHY BAY	133,562	$800,976
METOMPKIN BAY	83,357	$111,961
OYSTER BAY	21,763	$49,266
SOUTH BAY	224,502	$804,837
UNCLASSIFIED SEASIDE BAYS AND RIVERS	1,416,170	$6,187,333
SWASH BAY	1,513	$6,991
UPSHUR BAY	128,763	$1,030,397
WATTS BAY	23,059	$45,593
OTHER (ANNUAL AVG)	10,033.00	$2,159
		$14,980,648

Source: VMRC

VMRC also provided landings by water body (Table 2, Figure 6). Those data reinforced the predominance of the aquaculture industry. In 2014, Hog Island Bay accounted for more than a quarter of all seaside landings. Hog Island Bay. It happens to be northeast of Willis Wharf, home to both Cherrystone Aqua-Farms and H.M. Terry Company, both large, well-established aquaculture companies that grow out their clam and oysters in Hog Island Bay.

When examining trends within individual bays, some were more striking than others. For example, after reaching a peak of $702,390 of "Other" species taken from Chincoteague Bay in 2012, the "other" yield dropped 41 percent to $422,337 in 2013 and increased only slightly in 2014 (Table 3). The "Other" reporting category includes crabs, shellfish, and conch, which were reported together by VMRC to preserve data confidentiality. Data for Burton Bay showed a similar pattern.

Magothy Bay showed a 60 percent increase in shellfish landings when measured by harvest weight, and 800 percent when measured in value, an indicator of the growing shellfish aquaculture industry. Since 2010 four bottom leases totaling more than 600 acres were issued for oyster grounds Magothy Bay.

Commercial landings data for federal waters were not available at the level of detail needed to reflect Eastern Shore landings in time for inclusion in this report, but landings from federal waters do not appear to be as reliable as state landings for pointing to where commercial fishing

occurs. Federal landings do not point back to where the catch was taken – VTR data is the source of that information, and it is already captured in the Communities at Sea maps.

Furthermore, one fisherman interviewed for this report said fishermen who remain at sea for extended times, following fish as they follow preferred ocean temperatures, reported that landings were influenced by the availability of state quotas and commercial packers, in addition to the location of fish at any given time.

For example, one of the fishermen interviewed in December, 2014 was off-loading fish at the Chincoteague Fisheries Co-Op, before heading to North Carolina, where a small quota was open, to sell the rest of his harvest.

Photo: Commercial clamming in Hog Island Bay. Photo courtesy of Gordon Campbell, At Altitude Photography.

FIGURE 6: EASTERN SHORE COMMERCIAL FISHERIES LANDINGS BY WATER BODY

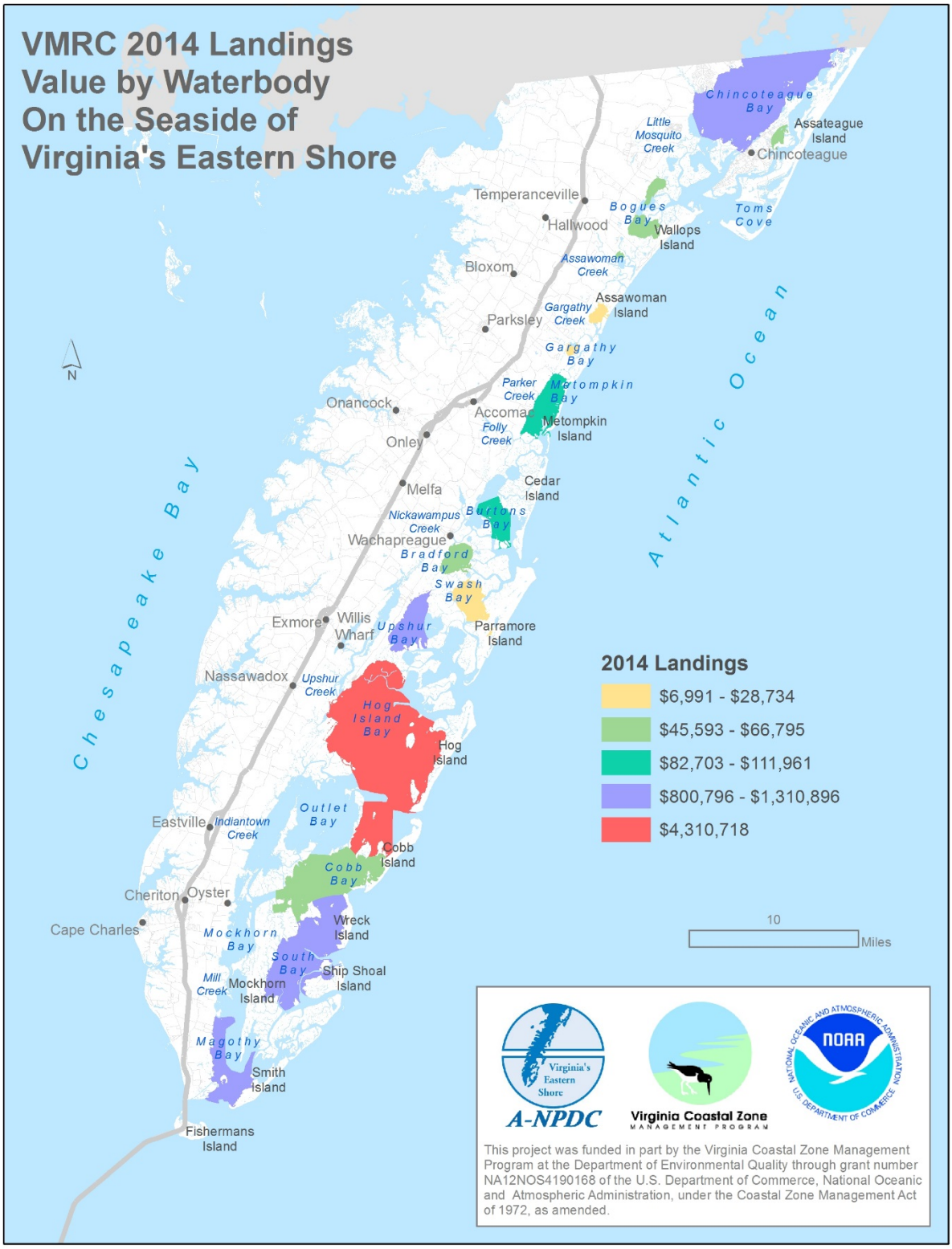


TABLE 3: EASTERN SHORE COMMERCIAL FISHERIES LANDINGS BY WATER BODY IN POUNDS

Eastern Shore Commercial Fisheries Landings by Water Body

Landings in Pounds, 2010-2014

	2010		2011		2012		2013		2014		Totals 2010-2014		GRAND
	Finfish	Other	Finfish	Other	Finfish	Other	Finfish	Other	Finfish	Other	Finfish	Other	TOTALS
BOGUE BAY	0	89,956	0	48,973	0	5,297	0	29,138	62	23,429	62	196,792	196,854
BRADFORD BAY	7,252	49,503	9,841	19,714	5,338	29,314	2,690	63,561	12,426	24,782	37,547	186,875	224,422
BURTON BAY	23,435	100,528	7,555	201,720	3,427	204,562	31,876	93,516	7,211	49,842	73,503	650,168	723,671
CHINCOTEAGUE BAY	93,854	668,039	211,399	694,335	162,656	720,390	210,468	422,337	224,985	425,168	903,361	2,930,268	3,833,630
COBB BAY	6,346	33,968	15,224	30,730	20,881	15,979	37,355	20,053	1,253	10,230	81,059	110,961	192,020
GARGATHY BAY	*	1,527	*	30,801	*	31,761	*	25,706	*	3,531	*	93,326	93,326
HOG ISLAND BAY	26,355	470,230	19,405	531,320	20,410	618,154	29,542	599,839	33,453	465,082	129,164	2,684,624	2,813,788
KEGOTANK BAY	*	*	*	*	*	*	*	*	*	*	*	*	*
MAGOTHY BAY	*	40,701	*	130,943	*	87,387	*	62,962	*	130,220	*	452,214	452,214
METOMPKIN BAY	7,940	26,606	2,134	90,782	1,830	77,740	2,718	47,256	16,775	66,582	31,396	308,966	340,362
OUTLET BAY	*	*	*	*	*	*	*	*	*	*	*	*	*
OYSTER BAY	*	*	*	*	*	*	*	*	*	*	*	*	*
SOUTH BAY	10,657	81,529	14,357	173,989	24,655	133,864	9,517	125,095	17,944	206,559	77,129	721,036	798,165
UNCLASSIFIED SEASIDE BAYS AND RIVERS	136,745	1,623,379	196,167	1,753,773	180,033	1,824,699	246,197	1,233,387	205,909	1,210,261	965,052	7,645,498	8,610,550
SWASH BAY	*	*	*	*	*	*	*	*	*	*	*	*	*
UPSHUR BAY	*	95,468	*	40,453	*	30,070	*	82,086	*	128,763	*	376,841	376,841
WATTS BAY	0	52,916	0	35,348	0	46,802	0	26,192	3,760	19,299	3,760	180,558	184,318
OTHER	7,483	10,134	7,232	40,543	7,927	9,212	5,549	8,935	8,992	23,183	37,183	92,006	129,189
GRAND TOTALS	320,066	3,344,483	483,314	3,823,425	427,156	3,835,231	575,912	2,840,062	532,768	2,786,931	2,339,216	16,630,132	18,969,348

*Due to confidentiality issues, data for this bay was combined with others and reported as "Other"

Source: VMRC

INFRASTRUCTURE – BOAT RAMPS

Both Northampton and Accomack counties offer free, public boat ramps. Some are specifically designated as commercial docks with improvements geared toward the needs of watermen, such as loading and unloading areas or running water. However, local officials report that all of their improved seaside launches, and some of the unimproved locations, are used by commercial fishermen. The public access sites are owned and maintained by the counties, except those in Chincoteague and Wachapreague, which are town facilities, and Wise Point and Red Bank, which are owned by the Eastern Shore of Virginia National Wildlife Refuge and the Virginia Department of Inland Game and Fisheries (DGIF), respectively. Although DGIF owns the Red Bank ramp, Northampton County provides maintenance at that location.

The Eastern Shore of Virginia Wildlife Refuge tracks commercial usage of its boat ramp. For the period of September 2013 through August 2014, officials reported more than 7,000 launches by commercial watermen.

A complete list of improved boat seaside boat launches in both counties can be found in Table 4, and their locations are noted in Figures 7, 8, and 9.

TABLE 4: IMPROVED SEASIDE BOAT LAUNCHES IN ACCOMACK AND NORTHAMPTON COUNTIES

Accomack County	Location	Features
Greenbackville	Off of Harbor Dr. (Rt. 3006)	Two concrete boat ramps with rental slips and parking.
Chincoteague Town Dock and Ramp	Main St. and Cropper (Behind American Legion)	Double concrete ramp, dock, paved parking for 17 trailers and 20 cars. Commercial bulkhead located further north at Robert Reed Park to accommodate trawlers after they offload at Chincoteague Fisheries Co-Op.
Chincoteague: East Side Ramp	East Side Road, between Turlington Ln. and Pointer Ln.	Double concrete launch with paved parking for 11 trailers and four vehicles.
Chincoteague: Veterans' Memorial Park	7472 Memorial Park Dr.	Single concrete ramp 11 paved trailer parking spaces and 22 vehicle spaces. Year-round rest rooms.
Curtis Merritt Harbor, a harbor of safe refuge	Curtis Merritt Harbor Dr.	Concrete boat ramp with paved parking for 39 boat trailers and 26 vehicles. Year-round bathrooms, cold-water outdoor showers mid-March to mid-November, and on-site harbor master. 96 boat slips, 25' to 50'; available by yearly lease, and a loading dock for larger vessels. Seasonal running water to boat-slips. 10-15 year waiting list for boating slip, although short-term sub-leases sometimes available through harbor master with priority to commercial uses.
Queen Sound	Off of Chincoteague Rd. (Off the Rt. 175 causeway between Wattsville and Chincoteague)	Concrete boat ramp with unimproved parking.

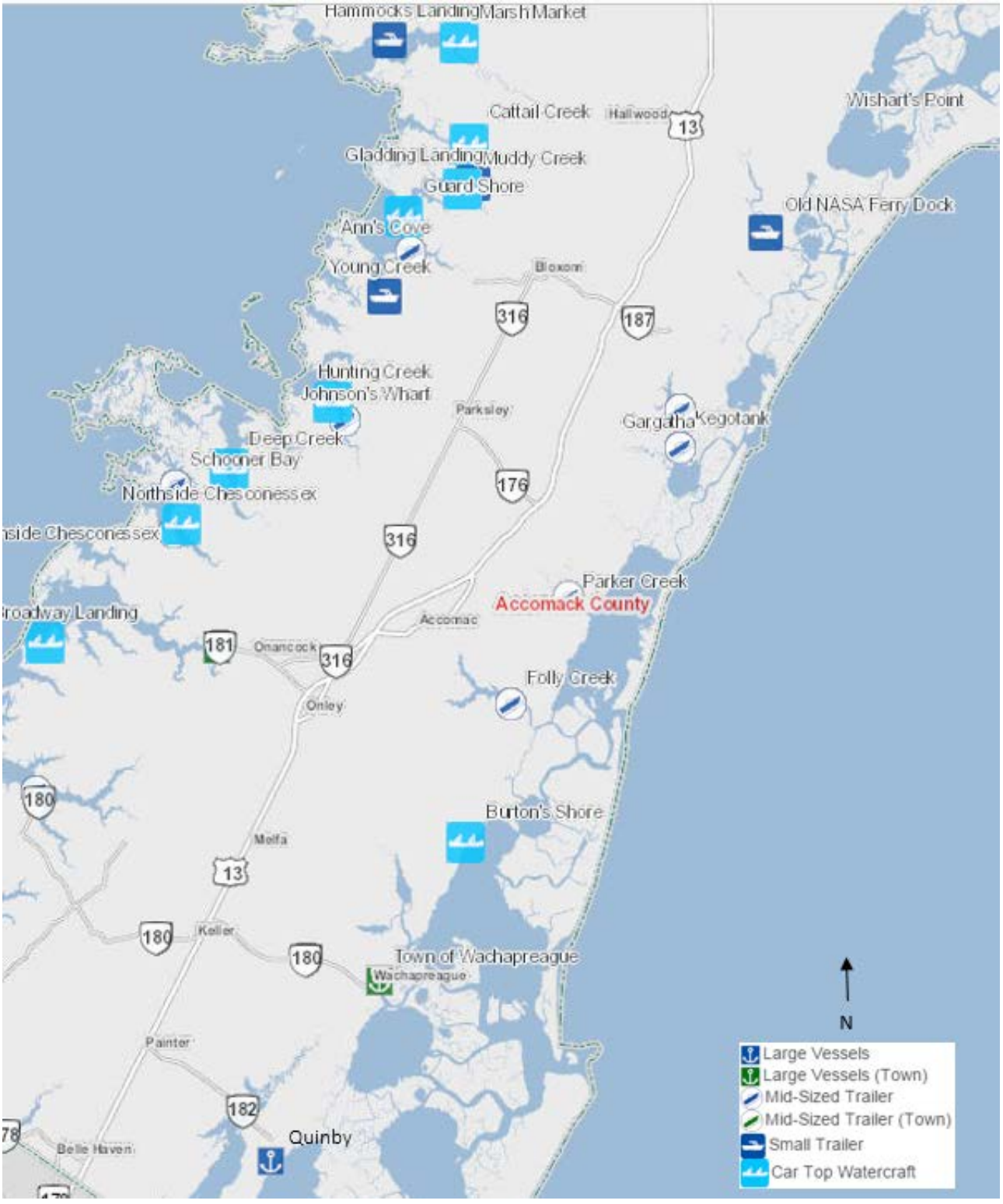
Old NASA Ferry Dock	End of Pierce Taylor Rd. (Rt. 730 near the village of Assawoman)	Limited use concrete boat ramp with limited unimproved parking and picnic gazebo.
Kegotank	End of Kegotank Rd. (Rt. 681 near Modest Town)	Concrete boat ramp with unmarked parking.
Gargatha Landing	End of Gargatha Landing (Rt. 680 near Gargatha)	Concrete boat ramp with unimproved parking.
Parkers Creek	End of Fox Grove Rd. (Rt. 666 near the village of Pastoria)	Concrete boat ramp with limited unmarked parking.
Folly Creek	End of Folly Creek Rd. (Rt.651 near the Village of Daugherty)	Concrete boat ramp with limited unmarked parking.
Town of Wachapreague	Atlantic Ave.	Free public launch next to Island House Restaurant. Town Marina also has a public launch; $5 to launch or $30 seasonal pass. Parking for free launch along Atlantic Ave. where legally permitted. Marina parking included in launch fee. Marina has slips for yearly or monthly lease (slips have water and electric), up to 44' vessel size.
Quinby Harbor	Off of Harbor Point Rd (Rt. 606)	Double concrete boat ramp with rental slips and parking. Fee for launches.
Northampton County	**Location**	**Features**
Willis Wharf	Route 603, Willis Wharf.	Two ramps with straight dock in the center. Ramp is used by commercial fishermen and aquaculture industry. Ample unmarked parking. County-appointed harbor committee oversees; part-time on-call harbor master.
Oyster	In the town of Oyster, at the end of Route 1802.	Two concrete ramps. Floating docks, plus one standard dock structure with 12 slips geared toward working watermen with seasonal water and electric. Appointed Harbor Committee and county maintenance employee serves as on-call harbor master.
Red Bank	At the end of Route 715.	Two boat ramps between l-shaped end docks, with straight dock in the center. Managed by Virginia Department of Inland Game and Fisheries; maintained by Northampton County.
Wise Point	Eastern Shore of Virginia National Wildlife Refuge	Managed by U.S. Fish and Wildlife Service. Two concrete boat ramps with parking for 41 trailers and 21 vehicles. Restrooms. Fee for launching. Commercial pass available.

Sources: County and town web pages, phone interviews with harbor masters, U.S. Fish and Wildlife Services, and Virginia Department of Inland Game and Fisheries.

FIGURE 7: NORTHERN ACCOMACK COUNTY/CHINCOTEAGUE PUBLIC BOAT RAMPS

Source: Accomack County Online Mapping Service

FIGURE 8: CENTRAL/SOUTHERN ACCOMACK COUNTY PUBLIC BOAT RAMPS



Source: Accomack County Online Mapping Service

FIGURE 9: NORTHAMPTON COUNTY PUBLIC BOAT RAMPS

Source: VMRC Online Viewer, Northampton County

INFRASTRUCTURE – AQUACULTURE

The Eastern Shore's thriving aquaculture industry relies on land-based infrastructure for hatcheries, nurseries and packing plants. Major Eastern Shore producers include Ballard Fish and Oyster Company, also trading under the labels of Cherrystone Aqua Farms and Chincoteague Shellfish Farms, and H. M. Terry, under the label. The small town of Willis Wharf is the epicenter of this burgeoning industry, housing a clam and oyster hatchery and nursery shared between the two companies. Additional Cherrystone facilities can be found in Oyster and Chincoteague.

Photo: Oyster crew working seaside. Photo courtesy of Gordon Campbell, At Altitude Photography. Used with permission. All rights reserved.

3.2 Where Fishing Occurs

COMMUNITIES AT SEA MAPS

Communities at Sea maps were produced for Chincoteague for three gear types: pots and traps; gill net; and bottom trawl for vessels over 65' (incorrectly labeled "Groundfish"). Maps for six gear types were prepared for the Virginia Community: bottom trawl for vessels less than 65'; bottom trawl for vessels greater than 65'; dredge, gill net, lobster, and pots and traps. Activity levels are depicted in ranges from green for areas where the least fisher days are expended, to red, and then white, for the highest levels of activity. Contour lines shown within the fishing activity areas mark the zones within which 75 percent of the fishing activity for the displayed gear type occurs.

Overall, fishermen who reviewed the Communities at Sea maps agreed that the maps were good depictions of the fishing activity for which they had knowledge, but three items stood out for follow-up:

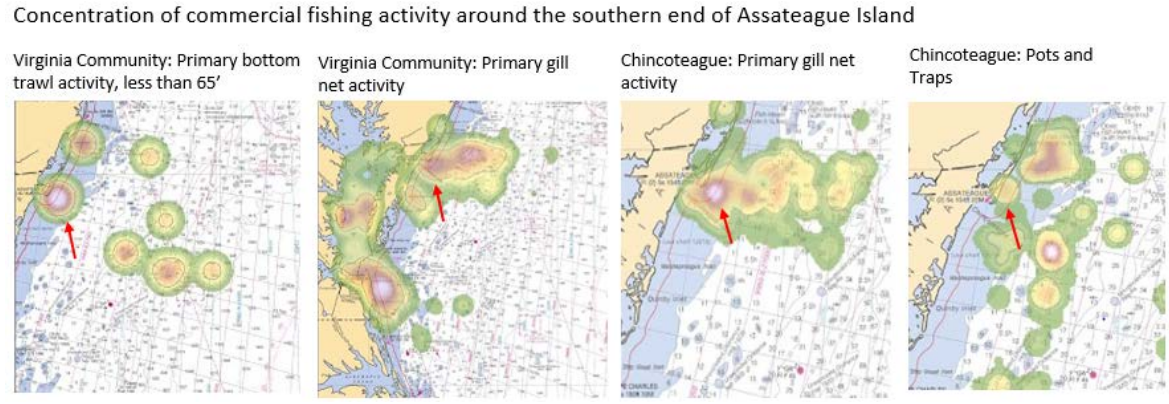
- The map titled "Primary Groundfish 65 Plus Activity" should be re-titled "Primary Bottom Trawl 65 Plus Activity."
- A small area on the Groundfish (Bottom Trawl) map – the one furthest east of Cape May - was noted by one captain as being too deep for trawlers, and he suspected it was a location fished by charter captains for swordfish. The area in question is circled in red in Figure 11.
- Additional areas for pots and traps, south and east of the offshore Virginia wind energy areas, and another parallel to and east of the existing pattern of pots and traps was noted by fishermen at a fishermen engagement meeting for the offshore wind energy area. Their proposed map additions can be seen in Appendix B.

Some fishermen expressed concern as to whether the years for which VTR data was mapped were good representative years, and noted that some species did not require permits in federal waters. All comments were shared with the team at Rutgers University for follow-up, and can be seen in Appendix B.

Chincoteague Communities at Sea maps are shown in Figures 11-13. All other seaside ports had too few vessels to create independent maps for each without compromising confidential data. Those ports are included in the "Virginia Community" maps, which are shown in Figures 14-19. for the following gear types: bottom trawl vessels greater than 65 feet long; bottom trawl vessels less than 65 feet long; dredge; gill net; lobster; and pots and traps.

The southern tip of Assateague Island was a hot spot across several gear types. Virginia vessels of less than 65 feet showed a high concentration of fishing activity there. It was also an important spot for Chincoteague gill net and pots and traps fishermen, as well as for the Virginia pots and traps community. These areas are highlighted together in (Figure 10).

FIGURE 10: CONCENTRATIONS OF COMMERCIAL FISHING ACTIVITY AROUND THE SOUTHERN TIP OF ASSATEAGUE ISLAND.



Source: MARCO/Rutgers University Communities at Sea Maps

FIGURE 11: COMMUNITIES AT SEA, CHINCOTEAGUE COMMUNITY: PRIMARY BOTTOM TRAWL (MAP IS INCORRECTLY LABELED) ACTIVITY, VESSELS GREATER THAN 65', 2011-2013.

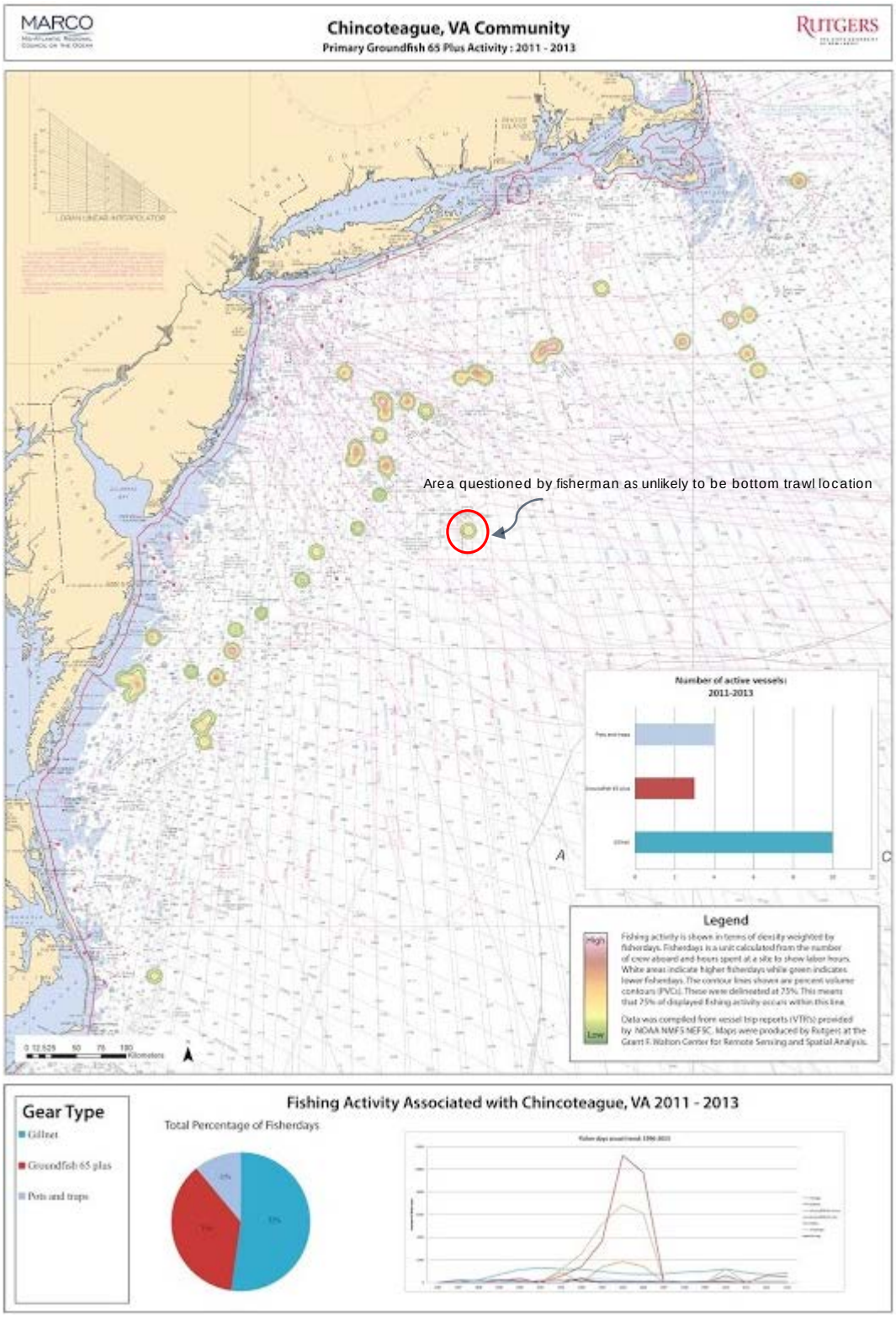


FIGURE 12: COMMUNITIES AT SEA, CHINCOTEAGUE COMMUNITY: PRIMARY GILL NET ACTIVITY, 2011-2013.

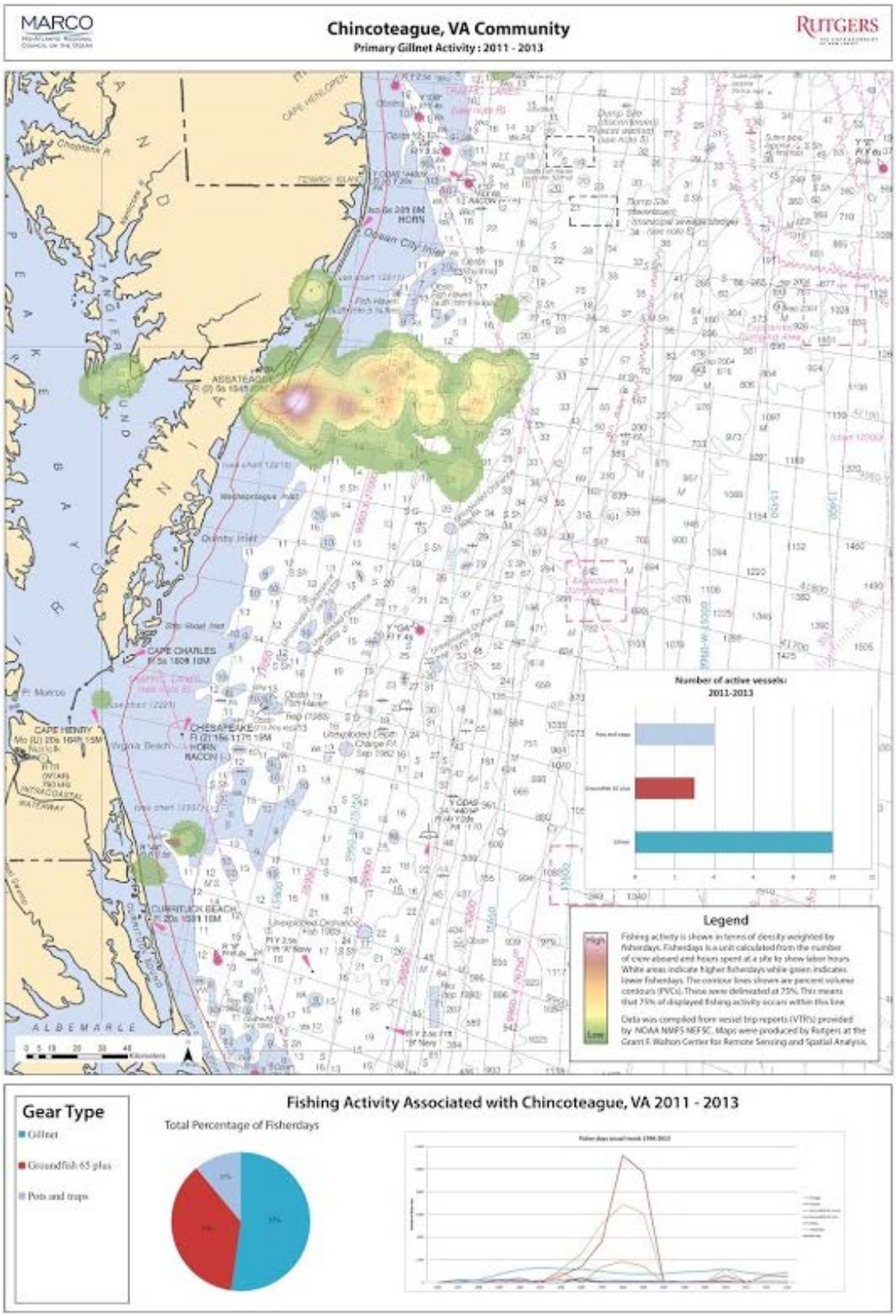


FIGURE 13: COMMUNITIES AT SEA, CHINCOTEAGUE COMMUNITY: PRIMARY POTS AND TRAPS ACTIVITY, 2011-2013.

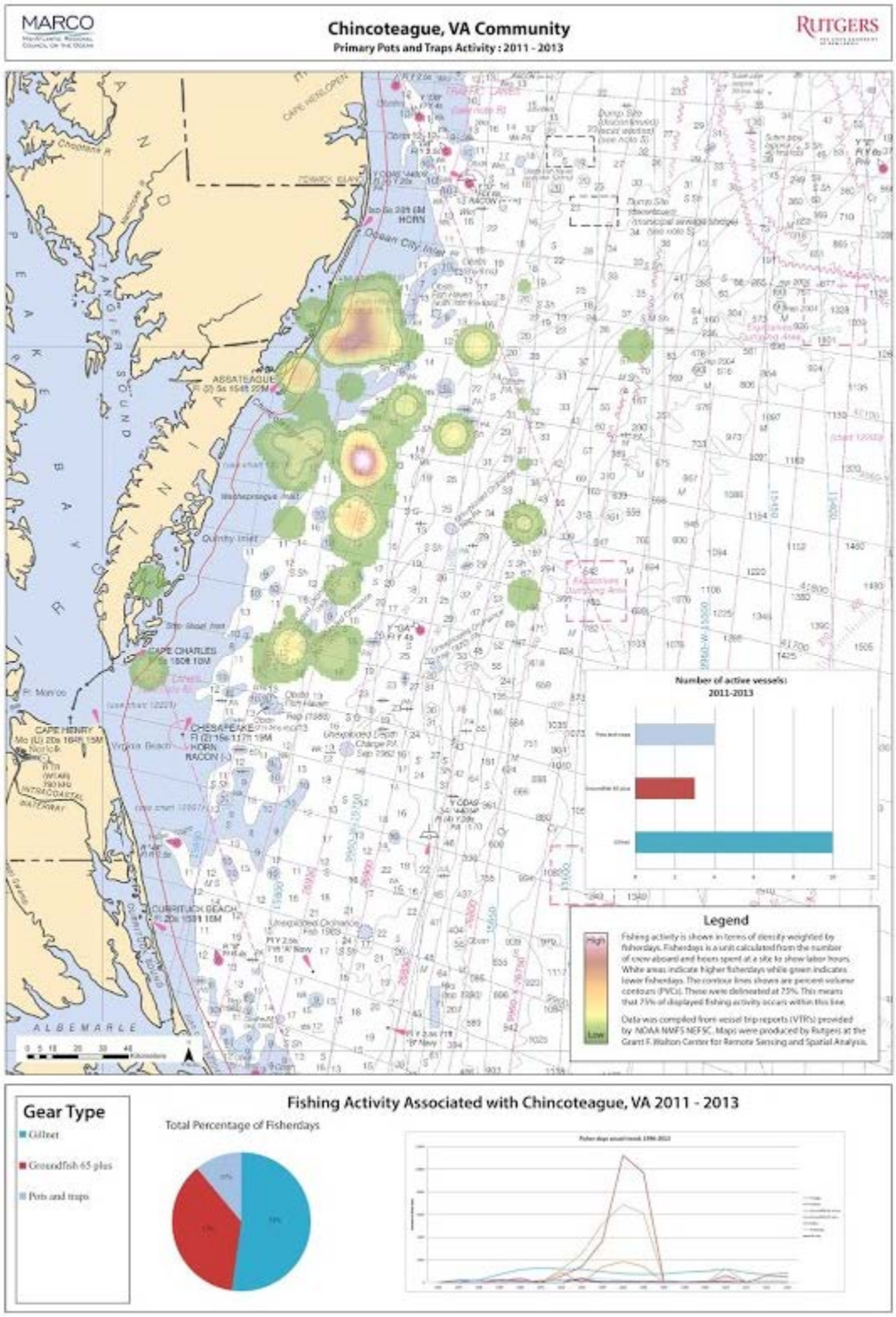


FIGURE 14: COMMUNITIES AT SEA, VIRGINIA COMMUNITY: PRIMARY BOTTOM TRAWL ACTIVITY, VESSELS LESS THAN 65', 2011-2013.

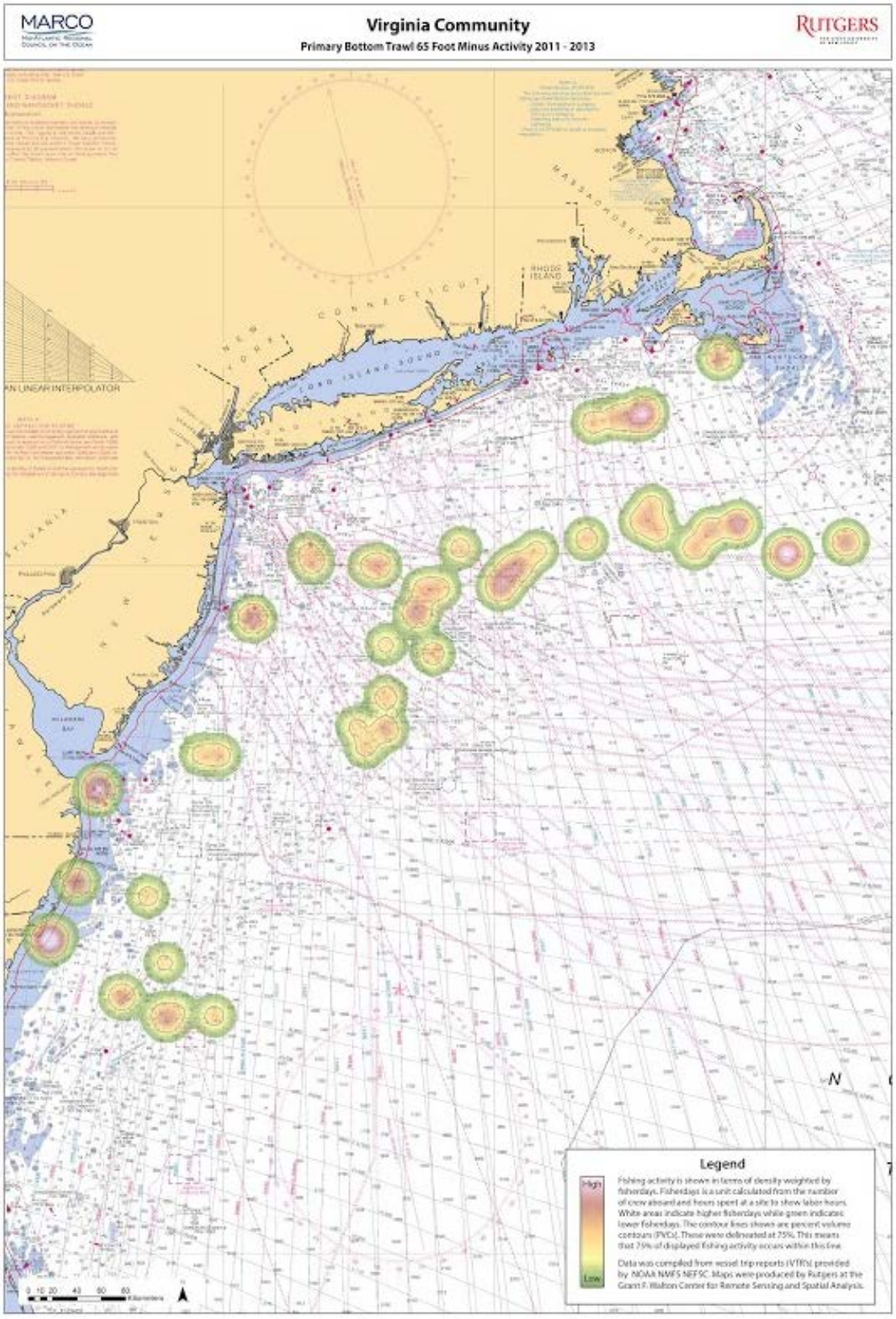


FIGURE 15: COMMUNITIES AT SEA, VIRGINIA COMMUNITY: PRIMARY BOTTOM TRAWL ACTIVITY, VESSELS GREATER THAN 65', 2011-2013.

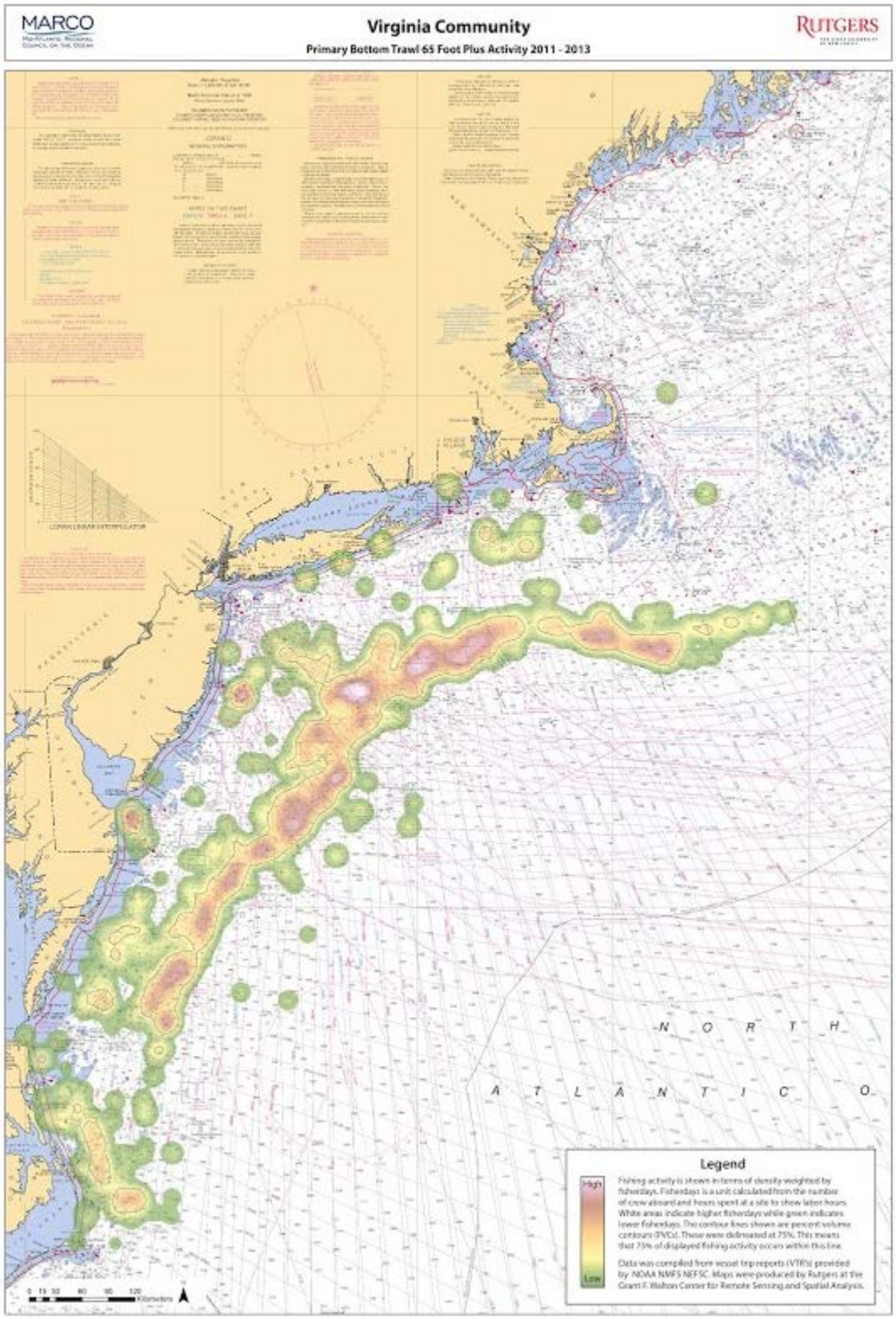


FIGURE 16: COMMUNITIES AT SEA, VIRGINIA COMMUNITY: PRIMARY DREDGE ACTIVITY, 2011-2013.

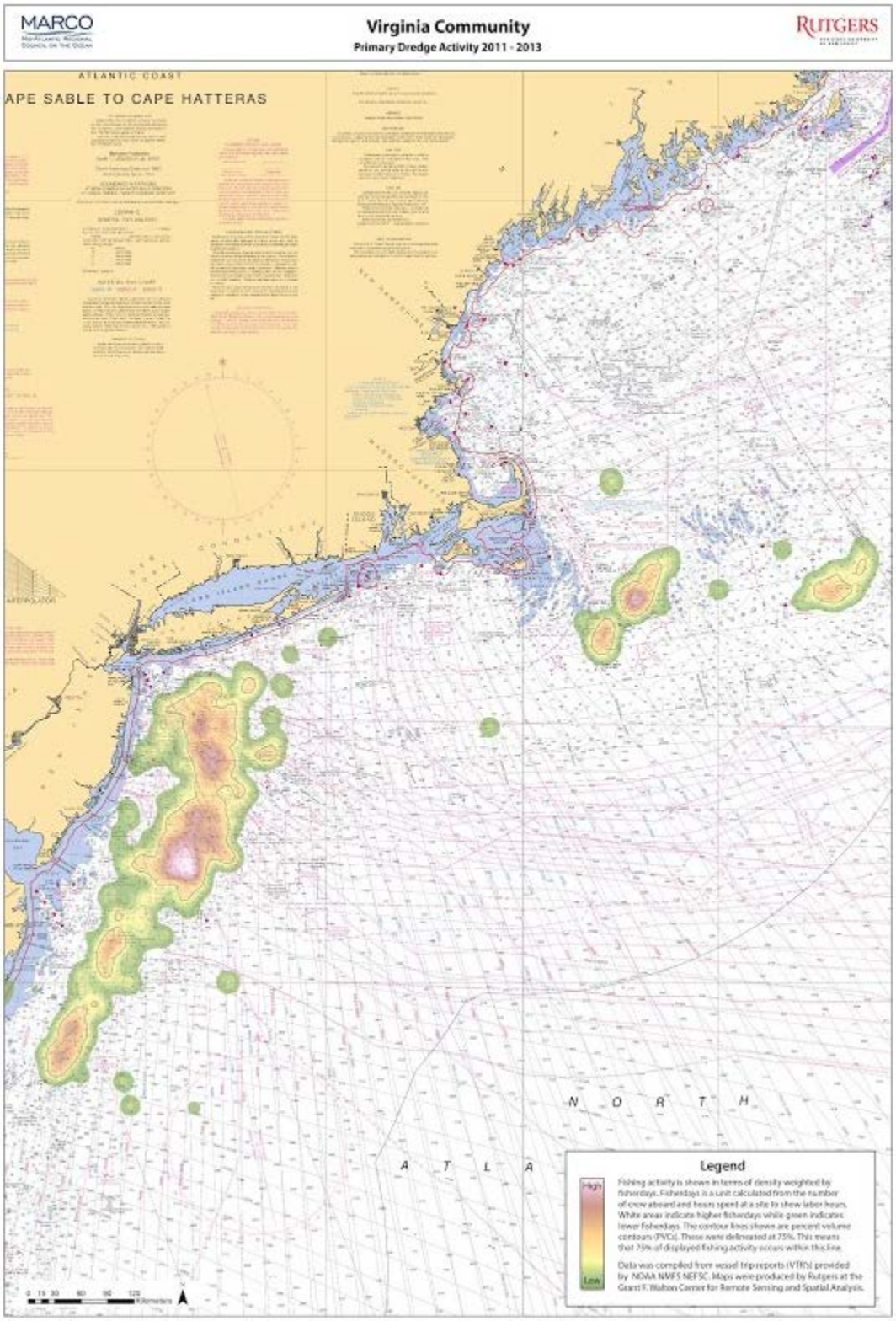


FIGURE 17: COMMUNITIES AT SEA, VIRGINIA COMMUNITY: PRIMARY GILL NET ACTIVITY, 2011-2013.

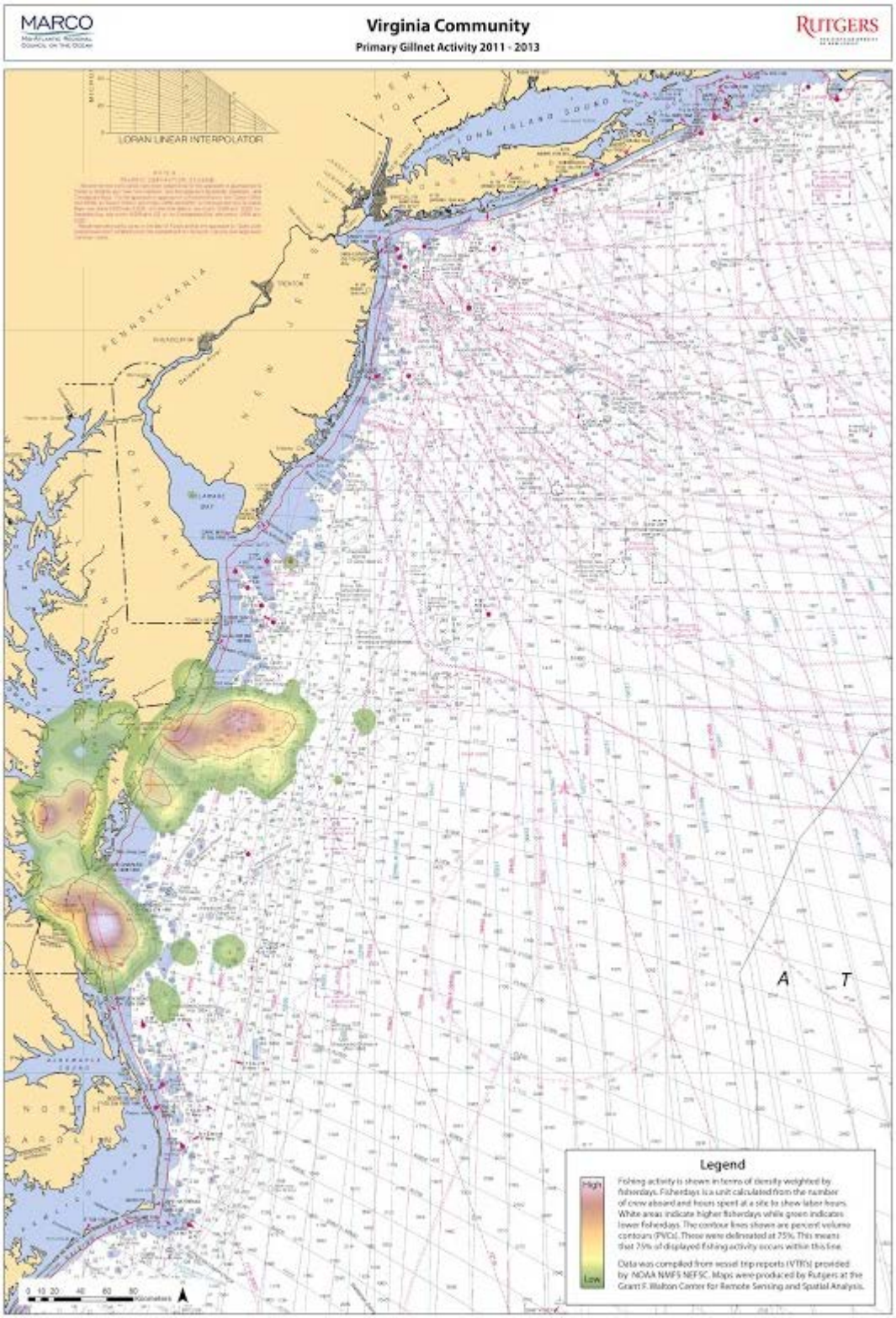


FIGURE 18: COMMUNITIES AT SEA, VIRGINIA COMMUNITY: PRIMARY LOBSTER ACTIVITY, 2011-2013.

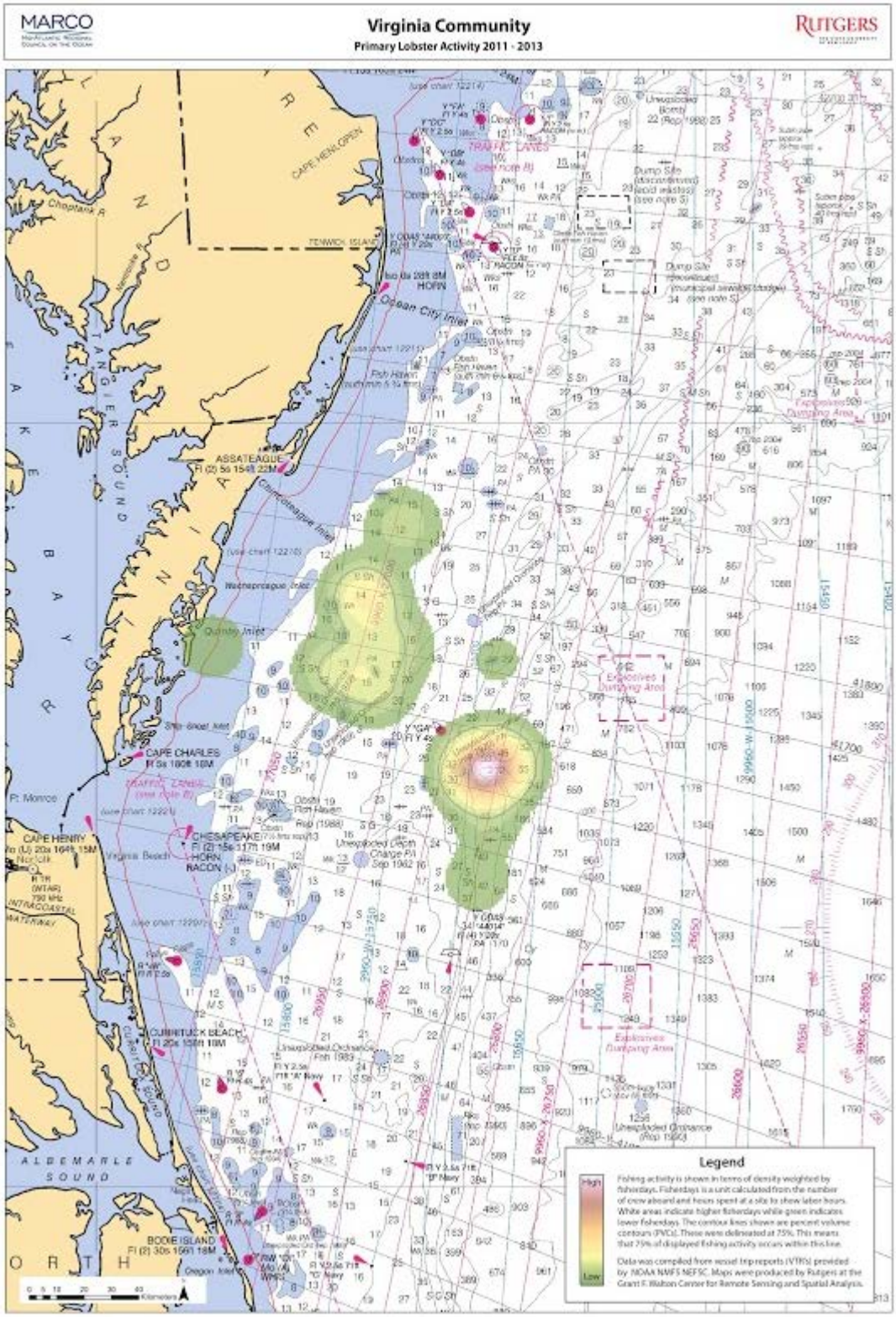
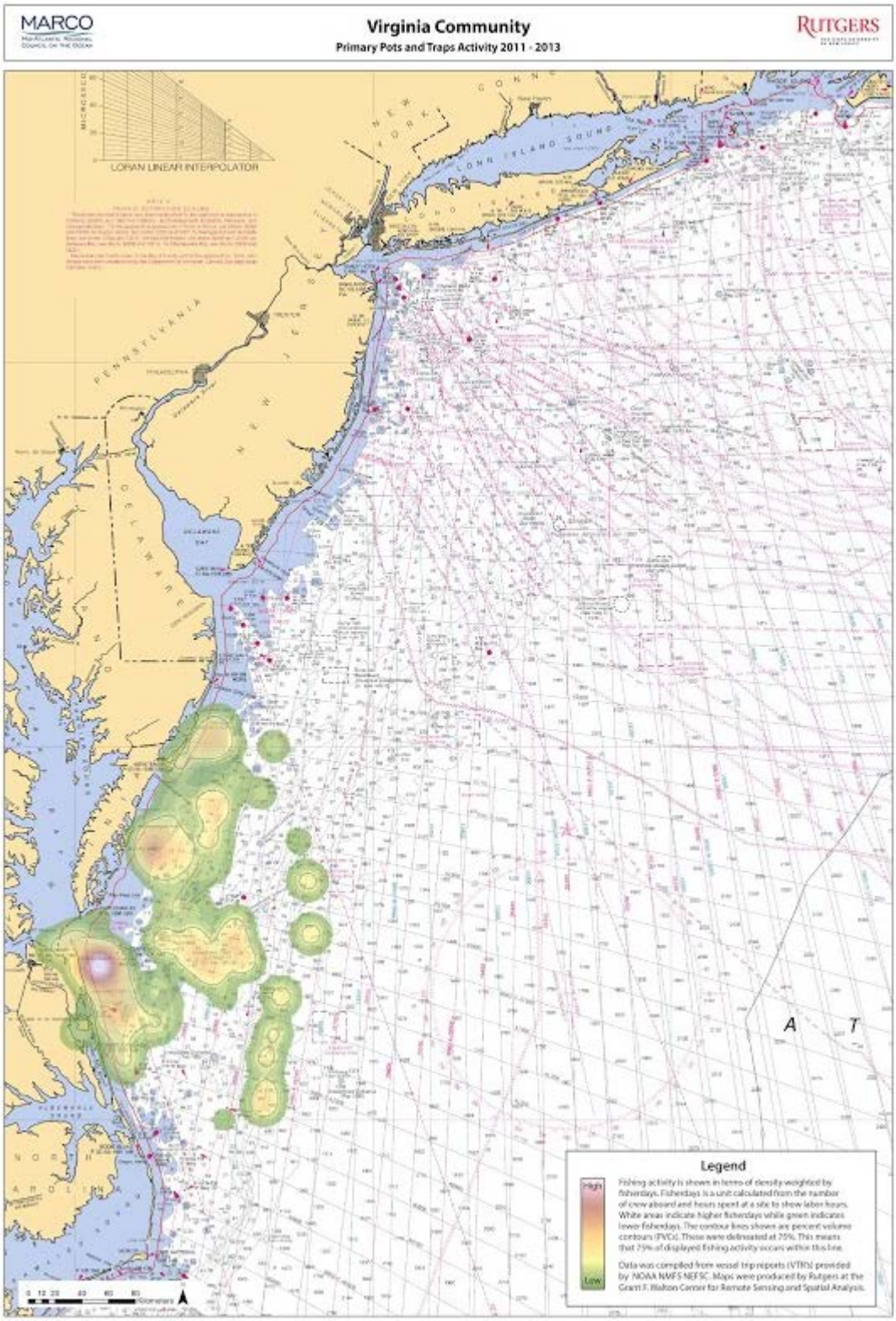


FIGURE 19: COMMUNITIES AT SEA, VIRGINIA COMMUNITY: PRIMARY POTS AND TRAPS ACTIVITY, 2011-2013.



The highest level of bottom trawl activity in the Virginia Community for vessels longer than 65 feet occurs in a range beginning about 60 miles offshore, and ending just before the shelf break, with secondary "hot spots" found at 15-foot contours closer to shore (Figure 15).

Chincoteague's corresponding Community at Sea map for bottom trawl vessels (erroneously labeled "Groundfish" in the map, as pointed out by one of the fishermen reviewers) (Figure 11) generally follows the same pattern, but with lighter activity, as would be expected with fewer vessels. Although there are several GARFO-licensed fishermen in the Chincoteague area, the Chincoteague activity likely also reflects non-local vessels off-loading at the Chincoteague Fisheries Co-Op.

Primary gill net activity for the Chincoteague Community extends approximately 50 miles east from Assateague Island (Figure 12). That area is also one of two important gill net fishing areas along the Eastern Shore for the Virginia Community (Figure 17). A second area is shown around the Wachapreague Inlet.

Primary areas of pots and traps activity for the Chincoteague Community (Figure 13) are clustered around the middle and southern end of Assateague Island, with other activity concentrations roughly 28 to 32 miles east of Metompkin Bay and Cedar Island in about 14 feet of water. These are also important Eastern Shore areas for the Virginia Community, with one additional location: an area with a north-south span well north of Wachapreague Inlet and well south of Quinby Inlet, and extending approximately 25 miles east (Figure 19).

Besides the concentration of effort discussed in Figure 10, Virginia bottom trawl vessels of less than 65 feet are shown fishing in lower concentrations approximately 50 miles east of the Quinby Inlet, and continuing east roughly 100 miles (Figure 14).

The map of primary dredge activity for the Virginia Community does not indicate any activity off the coast of the Eastern Shore of Virginia (Figure 16).

The largest amount of lobster activity is in the far southern edge of the study area, approximately 75 miles offshore (Figure 18). A small amount of lobster activity is shown near the Quinby Inlet, and a moderate amount of activity parallels the Shore from about Hog Island to Assateague Island, within depths of 9 to 18 feet.

Commercial Fishermen Surveys

Using a list of commercial fishing permits provided by VMRC in January, 2015, surveys were mailed to 210 commercial fishermen with permits to fish in water bodies along the coast of the Eastern Shore of Virginia. A total of 37 permits were returned, for a return rate of 17.6 percent. Table 5 provides a breakdown of returned surveys by type of permit.

Although it was not a scientifically-conducted survey, the information collected from fishermen provide insight into commercial fishing activity on the Eastern Shore. The overall return rate was 17.6 percent. Eighteen of 116 crab pot permit holders returned surveys (15.5 percent), and fifteen of 72 gill net permit holders (20.8 percent). Two of three fish pot permit holders responded; one of four eel pot permit holders returned surveys, and one of the 15 dredge permit holders responded.

TABLE 5: RETURNED SURVEYS BY PERMIT TYPE

Returned Surveys by Permit Type

Gear Type	Number of Permits	Number of Returned Surveys	Sample Size (Percent of Permits)
Crab Pot	116	18	15.5%
Dredge	15	1	6.7%
Eel Pot	4	1	25.0%
Fish Pot	3	2	66.7%
Gill Net	72	15	20.8%
Total VMRC Permits	210	37	17.6%

Source: A-NPDC survey of commercial fishermen

Most respondents marked maps indicating where along the Eastern Shore they worked, and returned these maps with their surveys. On the whole, crab pot respondents tended to be more localized, and gill net respondents indicating a much larger range, with many reporting that their range extends the length of the Eastern Shore. Figures 20 and 21 reflect self-reported fishing areas captured by the participatory GIS process. Out of concern for data confidentiality, map of the two fish pot survey respondents' activity was not included in this report.

Both maps indicate fishermen are utilizing the entire shore, but there is not much overlap in intensity between the two maps, except the northern end around Chincoteague Bay-Chincoteague channel. Nor is there considerable intensity overlap between the fishermen's gill net map and the MARCO gill net map, except, again, around the Chincoteague Bay-Assateague Island area. Some of the fishermen hold both GARFO and Virginia permits, and some of their responses reflect the breadth of that experience. Similarly, Virginia license holders might also hold multiple permits – such as a crab pot permit holder who also harvests clams – and their responses include all their work, as reflected in comments such as kayakers ripping nets and exposing clams to bull fish, even though permits for clams were not one of the VMRC permit categories targeted for surveys.

Figure 20 shows an apparent gap in crab pot activity for Gargathy and Metompkin Bays. For Metompkin Bay, that is likely a result of not getting any survey returns from permit holders from that area, rather than a lack of activity (six surveys were mailed to crab pot permit holders for Metompkin Bay). VMRC landings data show both finfish and shellfish, with more shellfish than finfish. With landings valued at $1.34 per pound, they were most likely crab landings, rather than oysters or clam, which typically fetch around $8 per pound.

Two surveys were mailed to crab pot permit holders for Gargathy Bay. With landings at $5.5 per pound, it appears that location is weighted heavily toward oysters and/or clams. Most of Gargathy Bay is comprised of Baylor (public oyster) grounds.

Table 6 summarizes types of conflicts reported by survey respondents by VMRC permit type. Thirty-seven survey respondents reported a total of 37 conflicts, with 12 fishermen reporting no conflicts in their work, and some reporting multiple conflicts. Of the conflicts reported, range closure for rocket launches at NASA's Wallops Flight Facility and interference by other commercial fishermen topped the list (each cited 10 times), followed by damage by those engaged in recreational pursuits (7 mentions). Environmental concerns and other governmental concerns were each cited by four survey respondents, and legislative and policy issues were mentioned by two.

Environmental considerations included pollution, protection of islands by The Nature Conservancy, and eel grass, which was reported by one waterman as clogging his boat motor. The Nature Conservancy's actions to protect natural resources, cited by two watermen, was seen as interfering with availability of oyster grounds. "Other governmental" conflicts incorporated two mentions of military exercises, one of leased oyster grounds, and one of a policy about harvesting horseshoe crabs at Assateague Island National Seashore. Legislative and policy issues were mentioned by two holders of crab pot licenses, and these respondents were concerned with requirements placed on permits.

Although they had fewer returned surveys than crab pot fishermen, gill net fishermen reported the most conflicts, with other commercial fishermen and Wallops Flight Facility seen as the most frequent sources of interference. Sources of commercial interference cited were other gill nets blocking access to shore, aquaculture, marine traffic, theft, and "crabbers."

Fishermen were also asked about considerations decision makers should take into account when making decisions about seaside and ocean waters. Experience working on the water, financial impact on watermen, fisheries and navigation data, and environmental concerns topped the list. All of their responses can be seen in Appendix E.

TABLE 6: COMMERCIAL FISHING CONFLICTS REPORTED BY VMRC PERMIT TYPE

Survey Responses to Question about Commercial Fishing Conflicts

(Responses Reported by VMRC Permit Type)

	Crab Pot	Gill Net	Fish Pot	Eels Pot	Dredge	Total
No Conflict Reported	8	2	1	1	0	12
Commercial	4	6	0	0	0	10
Wallops Flight Facility	2	7	1	0	0	10
Recreational	2	4	0	0	1	7
Environmental	2	2	0	0	0	4
Other Governmental*	2	2	0	0	0	4
Legislative/Policy	2	0	0	0	0	2
TOTALS	22	23	2	1	1	49

*Two reported military conflicts, one reported leased oyster grounds were a conflict, and one reported U.S. Park Service restrictions on hand harvesting harvest of horseshoe crab at Tom's Cove in Assateague National Seashore posed a conflict.

source: A-NPDC Survey of commercial fishermen

TABLE 7: REPORTED CONFLICTS BY PERMIT HOLDER WATER BODY

Reported Conflicts by Water Body Under Which VMRC Permits Were Issued*									
	Returned Surveys	No Conflict	Wallops Flight Fac.	Other Commercial	Recreational	Environmental	Other Governmental	Legislative/ Policy	CONFLICTS BY WATER BODY
Burton Bay	1	-	1	1	1	-	-	-	3
Chincoteague Bay	13	5	1	5	1	1	-	2	10
Hog Island Bay	1	-	-	-	-	1	-	-	1
South Bay	1	-	-	-	-	1	-	-	1
Ocean/Offshore	10	2	8	2	3	-	2	-	15
Unclassified Seaside Bays and Rivers	6	3	-	2	1	1	1	-	5
No Assigend Water Body	5	2	-	-	1	-	1	-	2
TOTALS	37	12	10	10	7	4	4	2	37
*NOTE: does note necessarily reflect where permit holder reported working									

source: A-NPDC survey of commercial fishermen

Photo: Harvesting oysters on the seaside at low tide. Photo by Gordon Campbell, At Altitude Photography. Photo used with permission. All rights reserved.

FIGURE 20: COMMERCIAL FISHING USING CRAB POTS ON THE SEASIDE OF VIRGINIA'S EASTERN SHORE AS SELF-REPORTED BY SURVEY RESPONDENTS

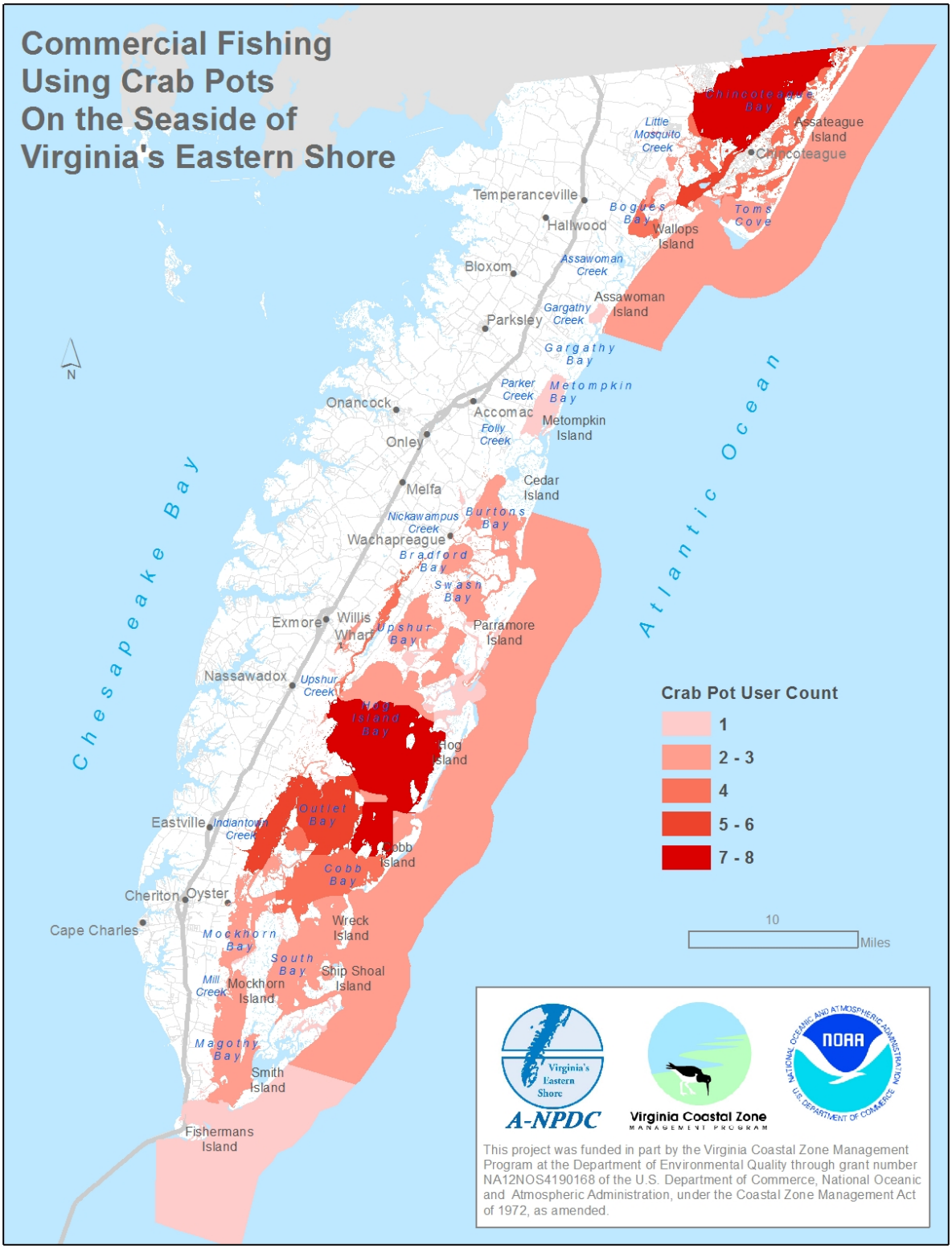
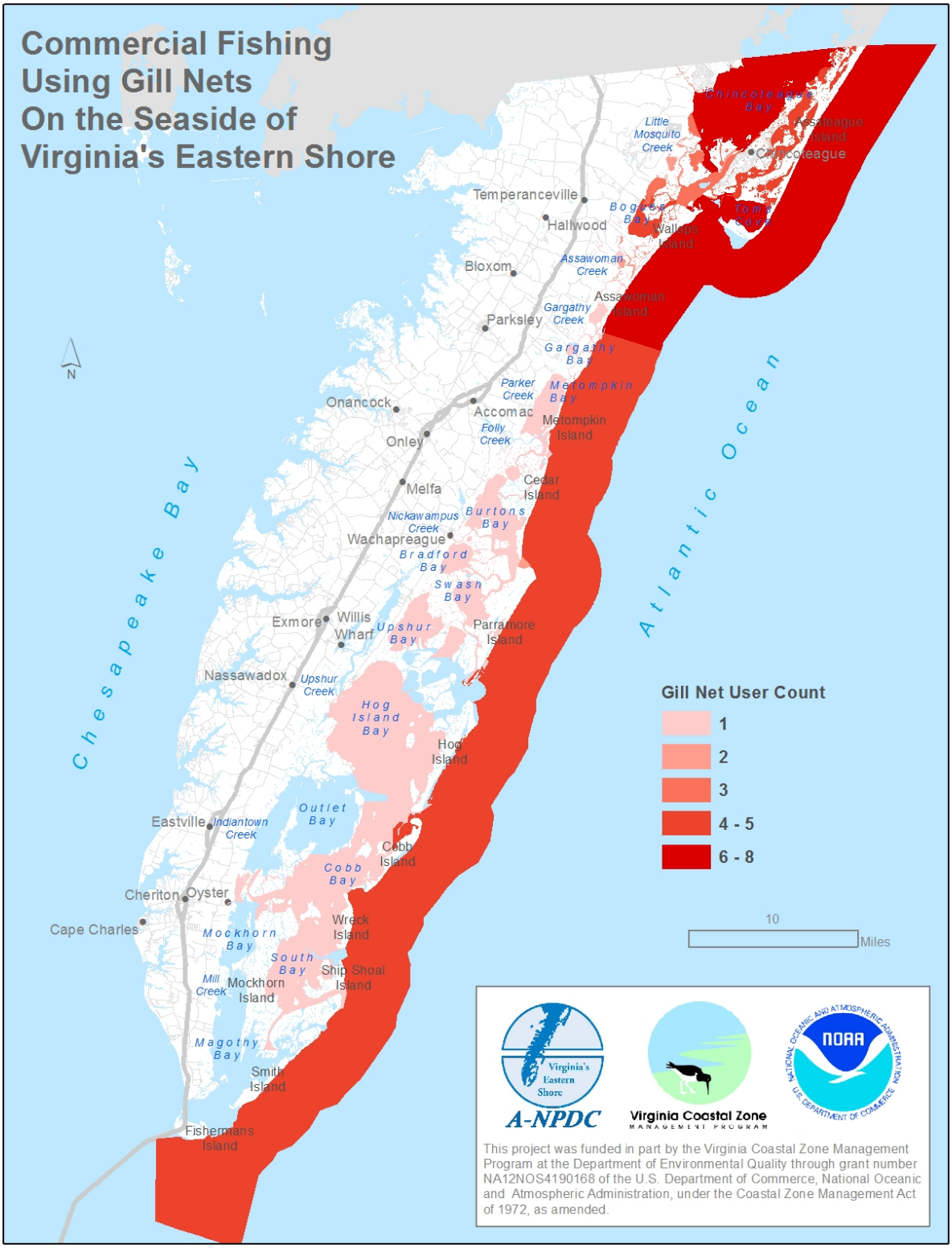


FIGURE 21: COMMERCIAL FISHING USING FISH POTS ON THE SEASIDE OF VIRGINIA'S EASTERN SHORE AS SELF-REPORTED BY SURVEY RESPONDENTS



As for the Wallops Flight Facility, one waterman summed it up this way: "We work year-round, both inshore and offshore," he said. "Wallop (sic) and any other need to consider the effects of closures. We are limited due to weather and can't afford to miss time due to closures."

Crab fishermen were more apt to report no conflicts (eight surveys), and four mentioned commercial conflicts. Beyond those, their sources of conflict were fairly evenly spread among the remaining categories, as shown in Table 6.

When the survey responses are grouped by the water body under which the permits were issued (Table 7), the ten survey respondents with permits to work in the ocean or offshore areas reported a total of 15 conflicts, and eight of those were closures for rocket launches. Of the 13 survey respondents working in Chincoteague Bay, five said they encountered no conflicts, but another five mentioned conflicts with other commercial fishermen. There are 36 crab pot licenses and 22 gill net permits issued for Chincoteague Bay, and some specifically mentioned the number of licenses or called out gill nets or crab pots as sources of tension.

When asked about patterns to the conflicts, three types of responses emerged: closings tied to Wallops launches (or attempted launches), seasonal conflicts as more people take to the water for commercial and recreational pursuits in the spring and summer, and those that are linked to permit requirements, such as opening and closing of seasons or time of day requirements.

By far, summer is the high mark, though conflicts were reported spring through December. "During spring flounder season," reported one Quinby fisherman, things are at their worst, when he experiences "cutting buoys on crab pots, (and) running over equipment."

A table of all responses can be found in Appendix E.

VMRC Records of Public and Private Shellfish Grounds

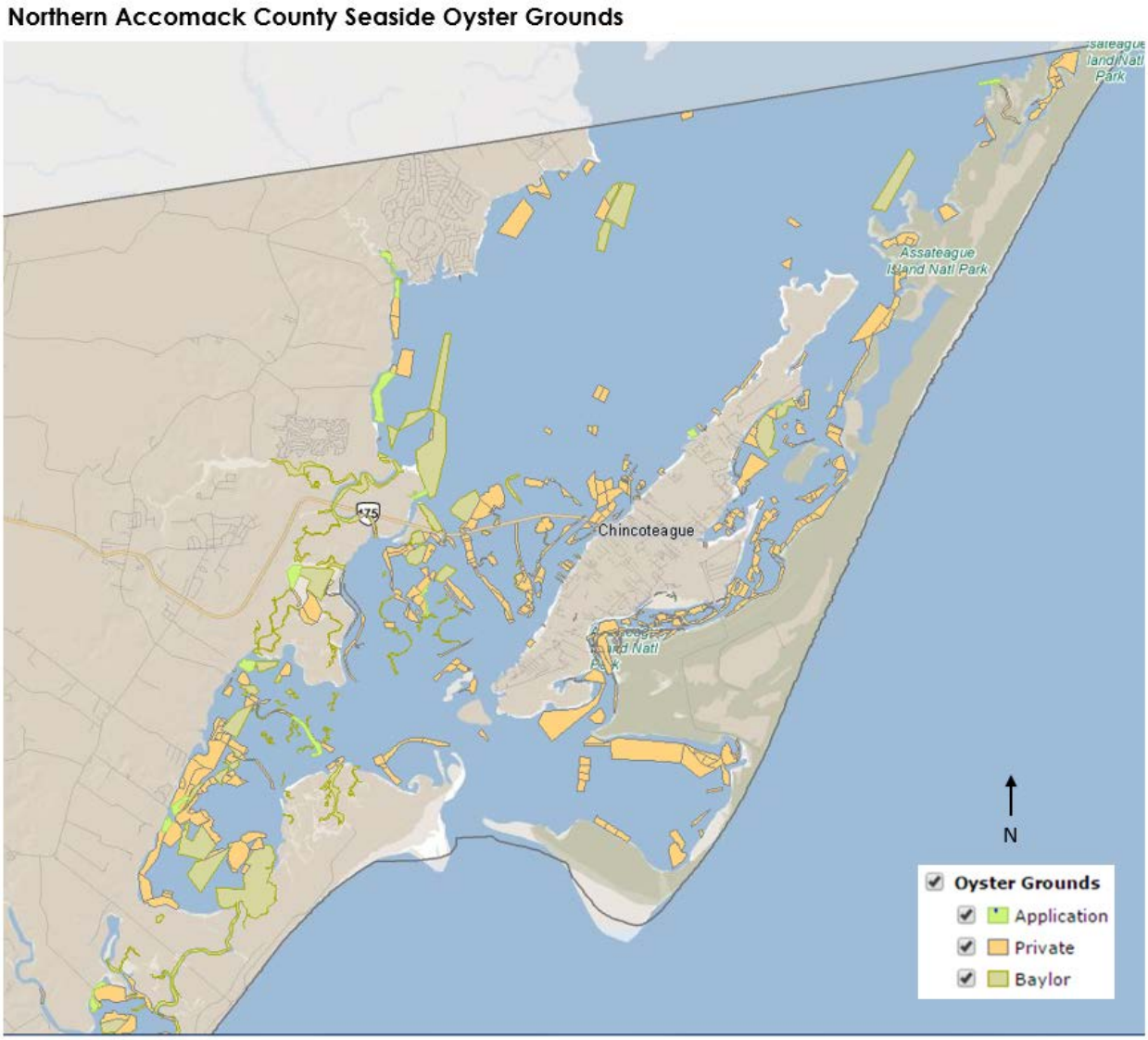
The VMRC is charged with managing the Commonwealth's submerged bottoms, which fall into three categories: public shellfish grounds, privately leased bottom, and unassigned bottom.

Public oyster beds are set aside for the public use in the Virginia Constitution and are managed through VMRC regulations. Commercial licenses are required for harvest of over one bushel of oysters or 250 clams, and both must be taken by hand or using ordinary tongs. Once bottoms are leased to private entities, they are managed by the leaseholders.

Figures 21 through 24 illustrate public oyster bed and leased bottoms as reported by VMRC. Leased bottom with pending applications are also shown. Figure 25 highlights public clamming grounds set aside by the VMRC.

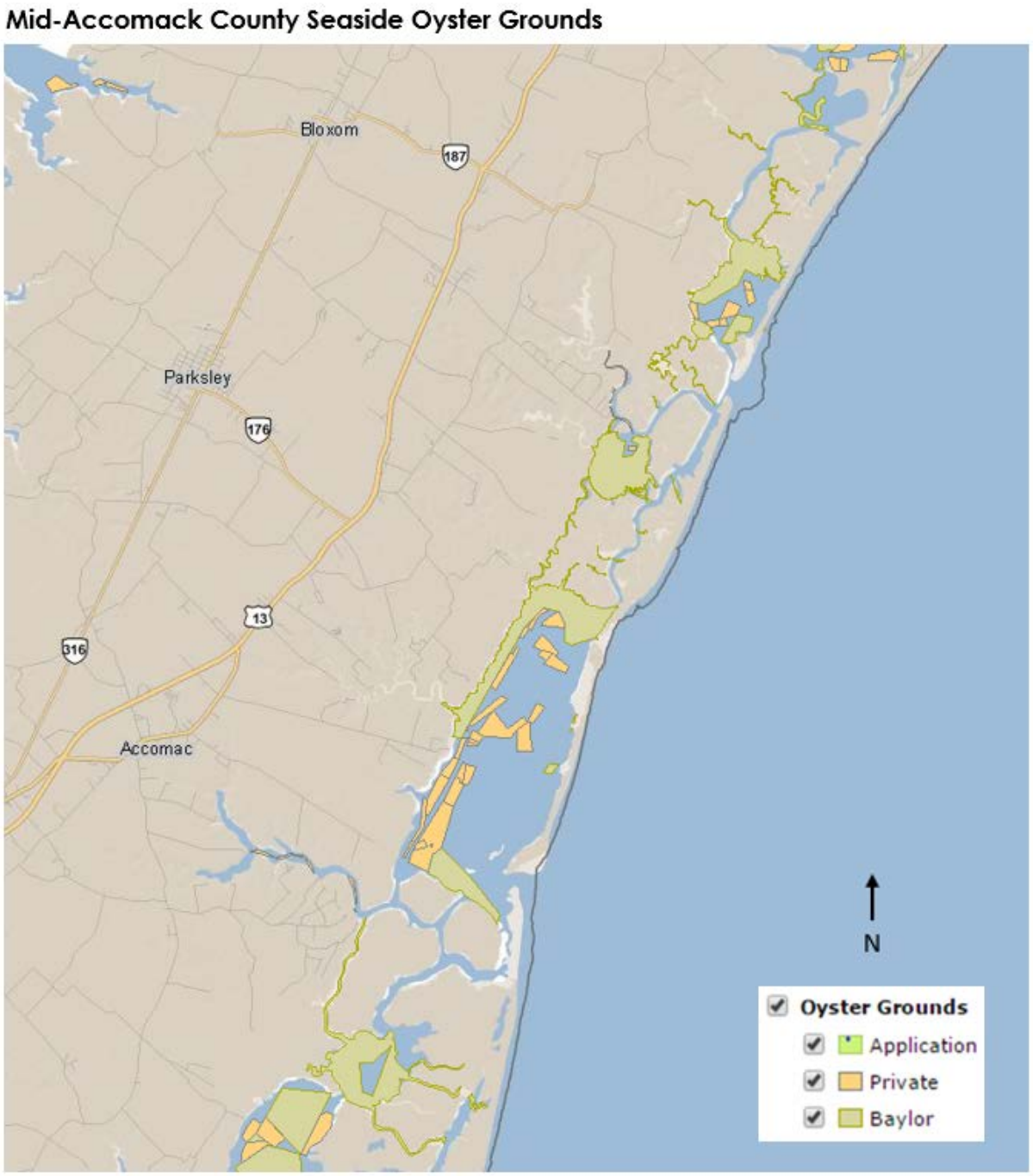
Public and/or private shellfish grounds are found in almost every inshore water body along the entire Eastern Shore of Virginia. Some bays, such as Gargathy Bay (seen east of Parksley in Figure 23), are almost entirely set aside for public use. Hog Island Bay, on the other hand (the northern part of Figure 24), has considerable privately leased bottom, mostly leased to large aquaculture companies.

FIGURE 22: NORTHERN ACCOMACK COUNTY SEASIDE OYSTER GROUNDS



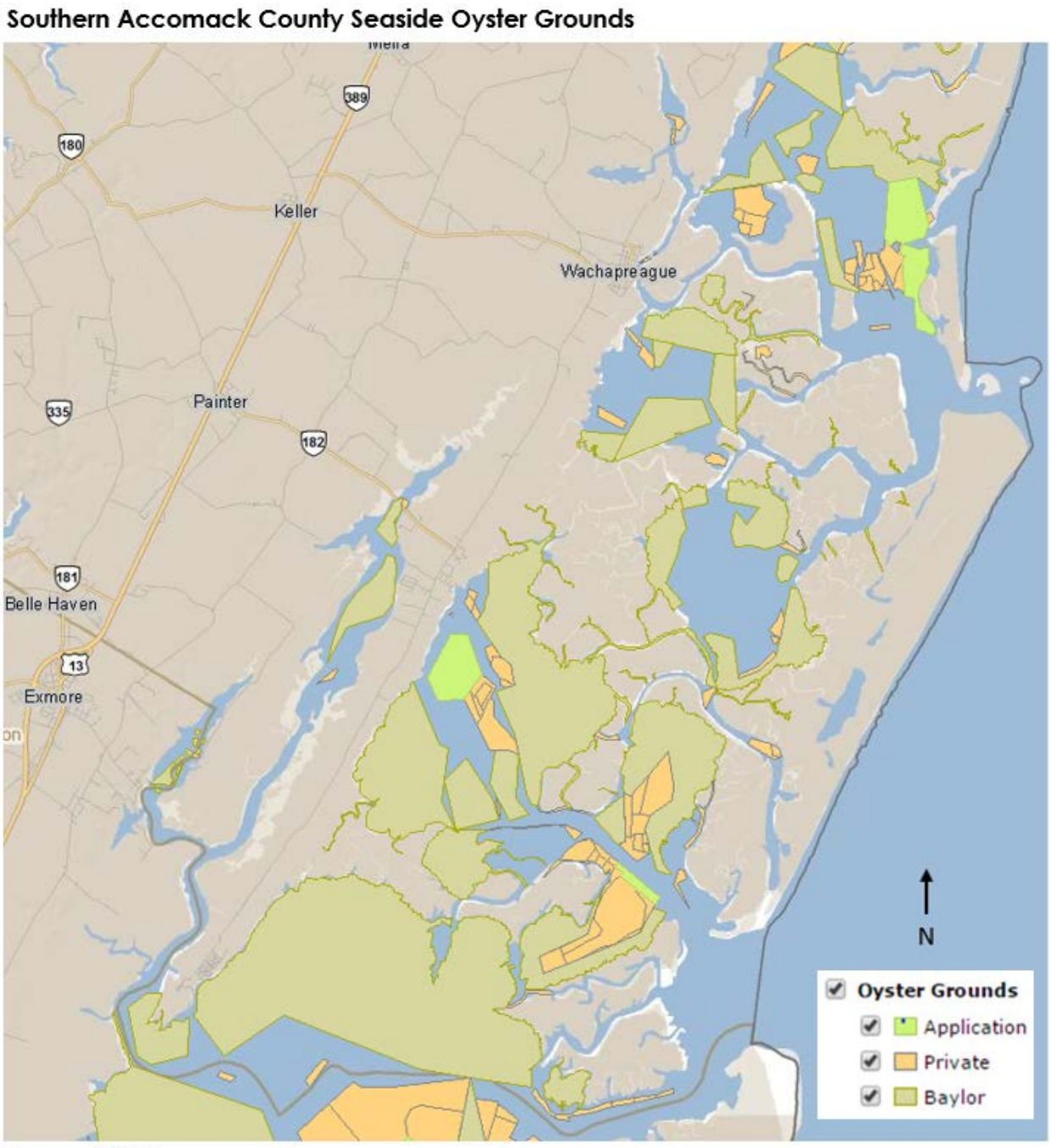
Source: VMRC

FIGURE 23: MID-ACCOMACK COUNTY SEASIDE OYSTER GROUNDS



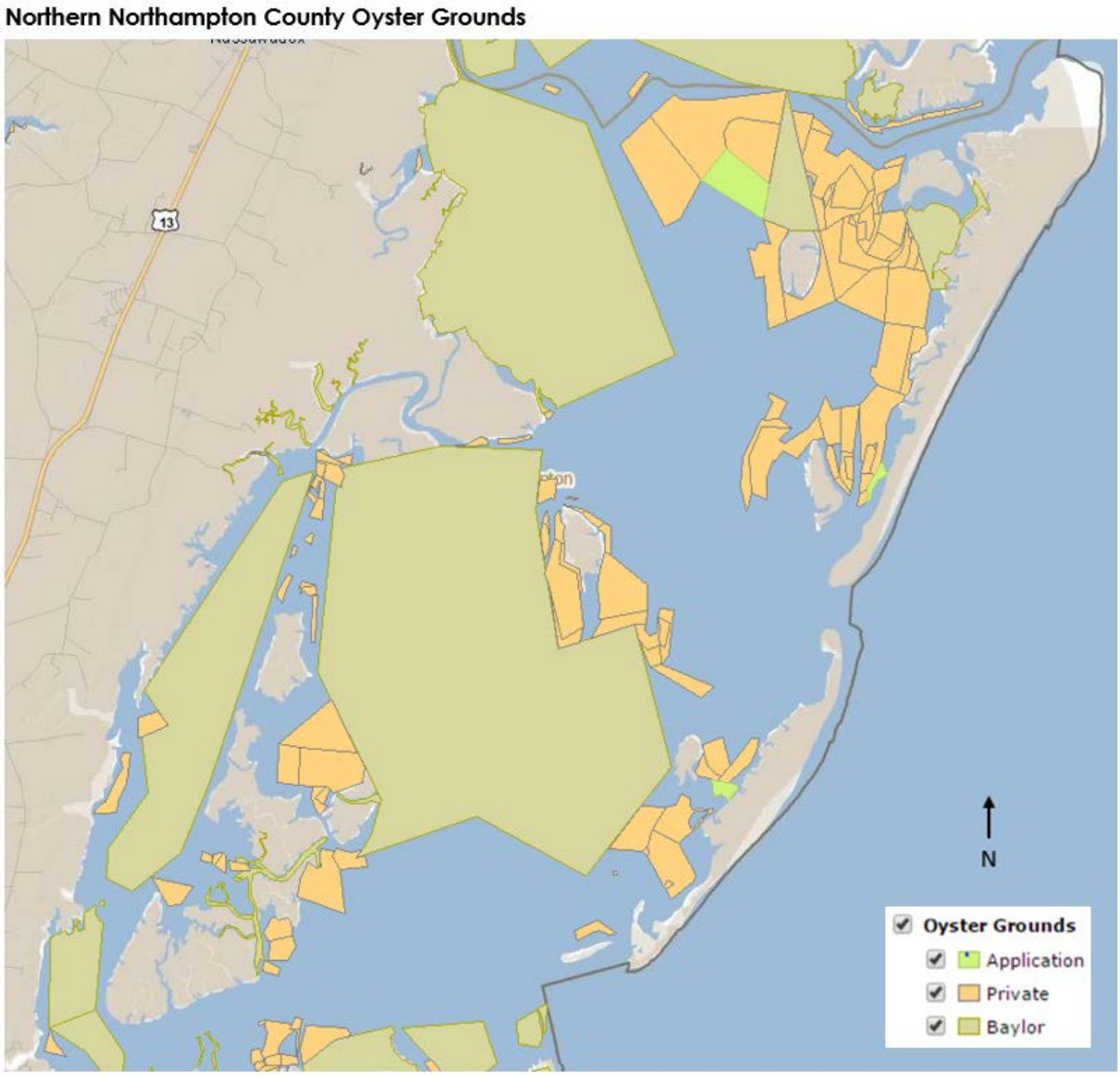
Source: VMRC

FIGURE 24: SOUTHERN ACCOMACK COUNTY SEASIDE OYSTER GROUNDS



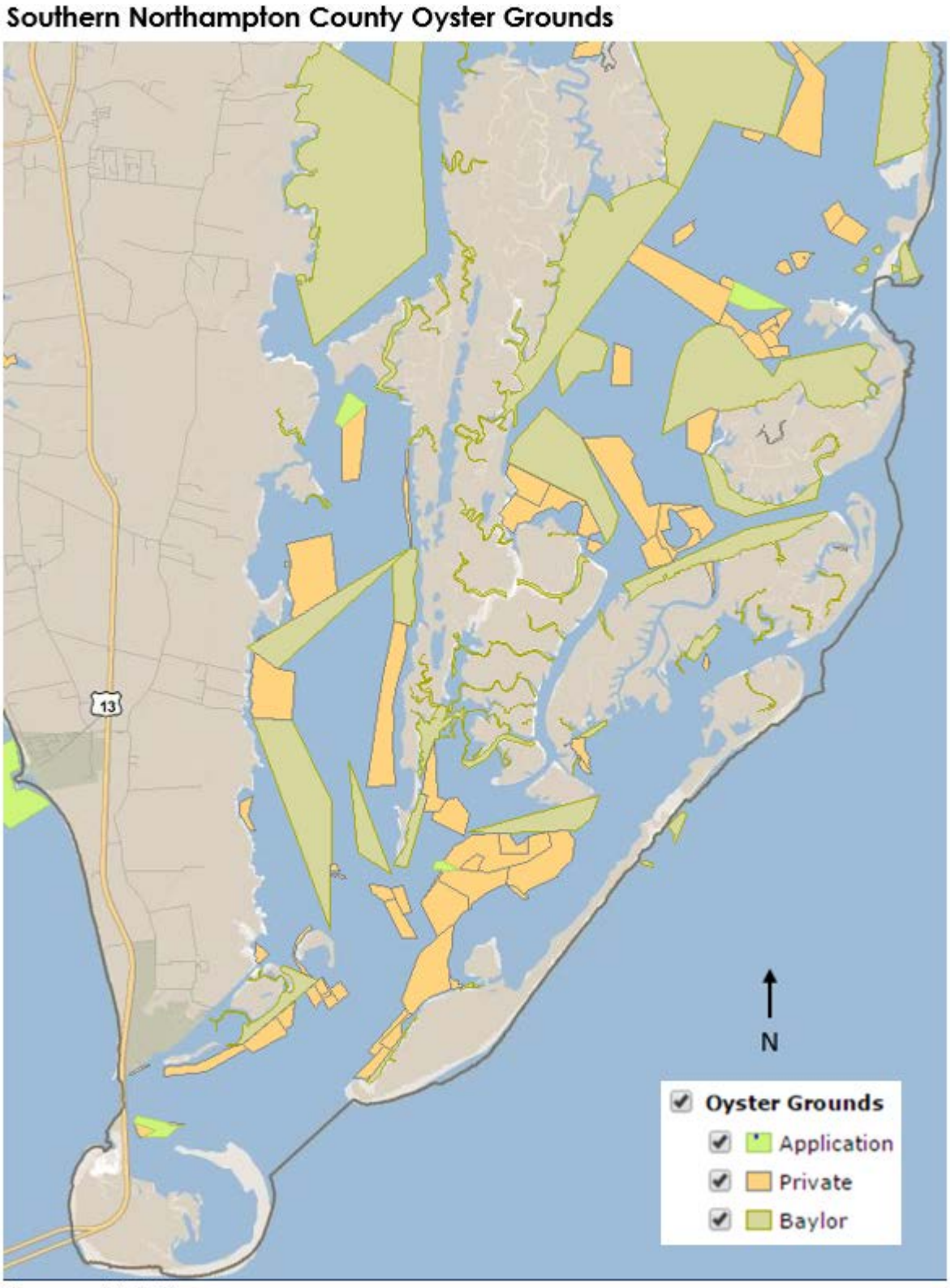
Source: VMRC

FIGURE 25: NORTHERN NORTHAMPTON COUNTY SEASIDE OYSTER GROUNDS



Source: VMRC

FIGURE 26: SOUTHERN NORTHAMPTON COUNTY SEASIDE OYSTER GROUNDS



Source: VMRC

FIGURE 27: PUBLIC CLAMMING GROUNDS IN NORTHERN ACCOMACK COUNTY

Source: VMRC

Chapter 4: Summary and Conclusions

A-NPDC completed an assessment of commercial fishing uses of the seaside of Virginia's Eastern Shore, based largely on state commercial fisheries landings data, MARCO Communities at Sea maps, and surveys of commercial fishermen that yielded both near shore fishing locations through participatory GIS and information about conflicts they encounter in their work.

4.1 Literature and Data Search: Permits, Infrastructure, and Landings

Existing permit data provided indications about the types of fishing that were occurring off the Eastern Shore of Virginia, and some permits were issued for specific bodies of water. About half of the 210 permits were issued for the ocean, for unclassified seaside bays and rivers, or gave no indication of the water body on the permit. VMRC permit data proved most useful in obtaining contact information for mailing surveys to fishermen.

The nature of fishing activity in federal waters made the federal GARFO permits and landings data less valuable as indicators of fishing activity, but the permit data did provide contact information for contacting fishermen to review Communities at Sea maps.

Commercial landings data for Virginia waters –inside the three-nautical-mile boundary that delineates where Virginia waters end and federal waters begin- could be seen as a proxy for examining nearshore commercial activity. County-level landings data are available only through special request, and although VMRC was able to fill most of the request, confidentiality concerns limited their ability to provide some of the data that would have been helpful in evaluating potential conflicts, such as month-by-month landings within water bodies.

The anecdotal reporting by local officials of widespread use of improved boat locations for commercial fishing is another indication of commercial activity, but only one location was able to provide commercial counts. Although a few docks give preference to commercial users, at most landings commercial fishermen compete with recreational users for the same infrastructure.

4.2 Methodology

Fishermen were generally uninterested in the Communities at Sea maps. The few who were willing to review them did not see applications for the fishing community, and some (reviewers and those who did not want to review them) expressed fear that any information they provided would come back to harm them in the long run.

One important lesson is to remain flexible in approaching fishermen. There was no single approach that worked. Being open to what works for the fishermen was the key to getting participation: gathering in a local fisherman's oyster house; rolling out maps on the car hood behind a local convenience store; staking out the dock at the fisheries co-op; and carrying Communities at Sea maps to a meeting where fishermen were gathered for a different purpose were all methods used to get feedback.

The fishermen survey enjoyed a return rate of 17.6 percent. The survey itself was not designed as a scientific survey, but rather as an opportunity to supplement other data with first-hand knowledge, and supplied the only first-hand source of conflict information.

4.3 Where Fishing Occurs

As the Communities at Sea maps indicate, the seaside waters off of the Eastern Shore of Virginia are important fishing grounds for the entire Virginia commercial fishing community. Those maps, the VMRC shellfish maps, and the VMRC landings data provided by water body, coupled with the maps returned by fishermen indicating the primary nearshore areas in which they work, provide a comprehensive look at the locations and overall intensity of fishing activity.

MARCO Communities at Sea maps were seen by commercial fishermen as good overall representations of fishing locations and intensity. Possible improvements to future mapping efforts could include seasonal indicators of activity. One or more commercial activities in the same location might or might not be conflicts depending on when they are in the area, the vertical profile of the work, and how active the fishermen are on a day-to-day basis.

VMRC data pointed to near shore areas of importance. VMRC commercial fisheries landings by water body gave the best indication of concentrations of fishing in the bays between the mainland and the barrier islands, but confidentiality issues prevented some data from being reported for some individual bays. Likewise, data could only be broken out by finfish and "other," which included shellfish varieties, but no further breakdown by species, which prevented more detailed analysis within bays – for example, isolating oyster activity from crab pot activity. Like the Communities at Sea data, VMRC landings lacked detail about seasonal fishing patterns. The data also lacked information about the vertical profile of activity, and did not distinguish between active uses, such as oyster harvesting, and more passive uses, such as shellfish growing on the bottom land.

Without the ability to tease out the details, using the VMRC data as a surrogate for conflict potential could overstate –or understate - the potential for conflict within a given area. And as the fishermen themselves pointed out, some conflicts are not in the water at all, such as the closings for rocket launches, or legislative and policy issues.

Maps returned with the surveys, and VMRC maps of shellfish grounds, reinforced the high volumes of activities on some areas of the seaside, and certainly the concentration of activity at the north end of the Eastern Shore contributed to the number of conflicts emanating from that area. Chincoteague Bay fishermen reported ten conflicts, and five of those were with other commercial users. The ten ocean and offshore permit holders reported 14 conflicts: seven were with range closures for rocket launches – also in the northern part of the county – and two were with other commercial users.

4.4 Recommendations

The summary above pointed out a number of possible ways to improve knowledge about seaside commercial fishing and potential conflicts encountered by the industry.

- Further investigation into commercial seaside fishing activities should consider vertical profiles of inshore areas and seasonal fishing patterns to provide a better understanding of conflicts.
- Conflicts with other commercial fishermen were cited ten times. In reading comments associated with these conflicts, there do not appear to be additional measures need to understand the nature of the conflicts. No further study is recommended.
- Launch range closures were also cited ten times, sometimes with impassioned language about the financial difficulties incurred, especially when launches are delayed and there are multiple closures within a short span. As the Communities at Sea Maps indicate,

areas subject to closures are important to fishermen beyond the Eastern Shore. Further investigation could provide more insight into the financial implications of range closures for Virginia fishermen.

- Additional planning efforts may be needed in areas where intense commercial and recreational uses were identified. Both studies identified intense uses in the vicinity of Chincoteague Inlet and its adjacent water bodies. A focused planning effort in this area or other similar intensely used areas should incorporate the broad array of stakeholders utilizing the area to develop more site-specific baseline datasets which could be used to assist with developing site-specific strategies for reducing ongoing use conflicts and enhancing existing uses.
- Environmental conflicts were few and diffuse. However, it is recommended that environmental regulatory and policy activities continue to consider potential impacts upon commercial uses by engaging commercial users during any development process.
- Other governmental and legislative/policy issues were also few and scattered. No further study is of any of the conflicts is recommended, but it is clear from some the watermen's survey responses that they want ongoing engagement about legislative and policy development.

Photo: Carefully tended oyster beds. Photo courtesy of Gordon Campbell, At Altitude Photography. Used with permission. All rights reserved.

Appendix A: Engagement toolkit Commercial Fishing Communities and Fishing Industry Reps: Outreach Toolkit

Protocol for Data/Map Validation Meetings with Fishermen (represented in VTR)

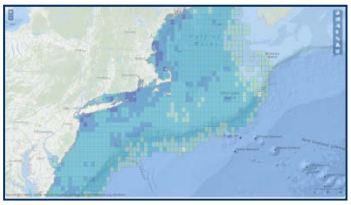
Format: One to several fishermen at a time to sit down to review and vet data.

Purpose:

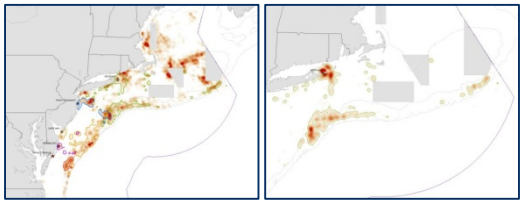
- Obtain feedback from fishing community members on accuracy, representativeness, format and utility of "communities at sea" maps.

1. Introduce the MARCO Project and Goals for the Meeting

- Discuss the MARCO project generally and within the context of ocean planning.
- Present this aspect of the MARCO project (i.e. documenting areas used by commercial fishermen).
- Make clear that there is a need to document areas at sea that fishing communities depend upon (yes, we need to document by sector/gear/fishery but, importantly, also by community).
- **[Slides, printouts, or go to portal online]** with examples of the many data layers in the portal... end with a map of ten minute squares.



  - Discuss importance of mapping fishing areas by sector and gear...
  - Note how they leave out who is fishing in these areas...
  - No way to know which communities depend upon which areas...
- Then show an example of a **[fishing community maps as slide, print, or computer]**.



- This map was made using VTR data. It shows the primary trawl areas for all vessels (first map) and for vessels associated with Montauk (second map). The outline is a 75% volume contour.

Appendix A: Engagement Toolkit, Continued

- Based on the data we see in these maps, we are making a map series that depict fishing areas used by communities. Such maps (or as digital data) could be used in the following ways:
    - By managers to know which communities depend upon which areas (e.g. for area-based management, for impact analyses of other marine uses...).
    - By scientists (e.g. which fishing communities have which local knowledge of ecosystems? which communities might partner with scientists? which fishing practices are in which places...).
    - By fishing communities (e.g. advocating for maintaining access to particular fishing grounds, seeing which areas are under threat, demonstrating dependence...).
- Our primary interest is to get feedback from fishing community members concerning the map series. Before they are made public, we want to work with fishing communities to explore:
    - How fishing communities would like the data to be used (e.g. input into spatial management or ecosystem science).
    - How fishing communities would like to use the data themselves (e.g. advocacy).
    - Do fishing communities think the data is accurate? Complete?
    - How might we enhance the charts (e.g. in terms of color, other data on the charts).
    - How might we use the data to do analysis of change over time?

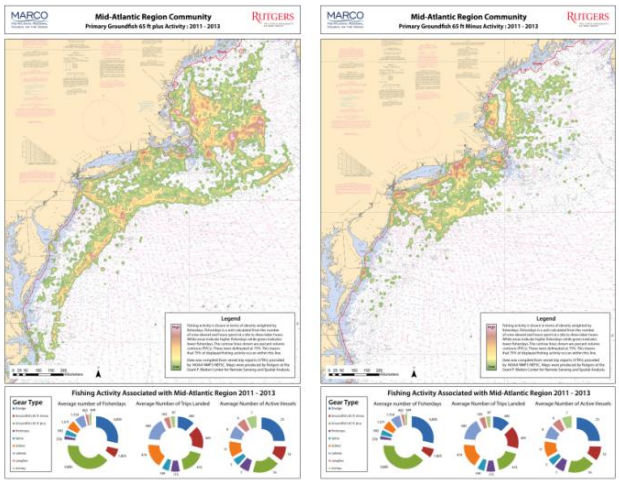
2. Get to Know the Attendees

- Because we can use this data to make maps at different scales, different gear groupings, and for different communities, we'd like to ask you a few questions to better match which maps to discuss with you... based on your interests and experiences...
- We are assuming that your primary experience has been commercial fishing... and that you are associated with the port of _____.
    - For how long? How many years?
    - Have you also fished from other ports?
    - In what capacity are you fishing now (e.g. owner, captain, mate, crew)?
    - What type of fishing (e.g. gear, vessel type, vessel size, targeted species)?
    - Given your experience, would you say that you have a good sense of where your peers in _____ go fishing (in general)?
    - Do you know which areas are important to _____?
- As you may have guessed by now, we are not interested in individual "hot spots", we are not interested in where any particular vessels go fishing... We are interested in the general areas which are important to your fishing fleets.

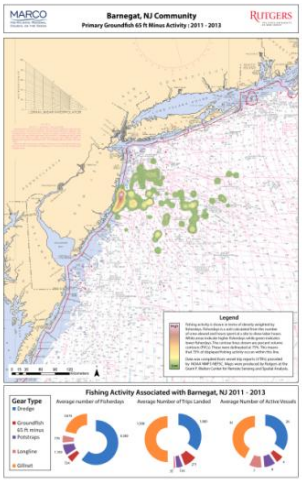
3. Introduce the Map Series (An Example)

- The map series can work at a variety of scales. One of our goals is to ask you what works and what doesn't at which scale...
- Let's first examine the general **[region-wide maps]** which DO NOT "zoom in" on community. They are similar to the ten-minute-square maps in terms of what they show.

Appendix A: Engagement Toolkit, Continued



- These maps show ground fishing areas (i.e. trawl gear) for the entire Northeast. The fist map shows the fishing areas most frequented by large vessels. The second are fishing areas most frequented by small vessels.
- The actual variable is "fisherdays" which is a measure of labor time (i.e. how much time do fishermen spend in particular locations fishing?).
- We've also added some graphic summaries of other data relevant to the map...
- *This is not ready yet... Eventually we need one more level of map here... one that shows community areas for a variety of communities as PVCs for the region... (to show all the different communities and where they fish... including the host community).*
- As we noted, with this data we can "zoom in" to particular communities. Here is a **[map showing those locations where _____ spends most of its time groundfishing]** (using trawl gear).



- So, these are our current "templates" for the map series... but before we explore them in more depth, do you mind if we ask you a few questions?

Appendix A: Engagement Toolkit, Continued

4. Review Maps of [specific port]_'s Fishing Areas

- Let's look more closely at the fishing patterns of _____.. We will start with maps which reflect the gear type you use (?????).
- The **[first map is again for the entire region]** and not in particular...

SELECT Map of entire region... Use data/map reflecting experience of attendee...

- This map shows fishing (the type you do) for the entire region. It shows where time is spent on this type of fishing in the Mid-Atlantic and beyond.
    - Do the areas you know appear on this map? Where are they?
    - Are these areas important to you? What other ports/communities?
    - Do you think the maps accurately show primary fishing areas?
    - If not... why not? What is incorrect or missing?
    - Do you think the secondary areas (beyond the outline in green) area also accurate?
    - Is there anything surprising about this map?
    - Would you like to see it widely available? Why or why not?
- There are also graphs and other supplementary data added to this map... Let's have a look.
    - Do these data seem correct to you?
    - If not, what is incorrect?
    - Is this data surprising? Useful?
- The **[second map is just _____ fishing]**, just vessels associated with Barnegat and that use gear like you... this is a map of where you and your peers spend most of your time fishing.

Appendix A: Engagement Toolkit, Continued

SELECT Map of just ____ fishing...

Use data/map reflecting experience of attendee...

- Questions...
  - Do you think the maps accurately show your community's primary fishing areas?
  - If not... why not? What is incorrect or missing?
  - Do you think the secondary areas (beyond the outline in green) area is also accurate?
  - Who else fishes in these areas? Are they mostly the areas of _____ vessels or other vessels too?
  - Is there anything surprising about this map?
  - Would you like to see it widely available? Why or why not?
- The graphs and other supplementary data added to this map are the same as on the region-wide map...
- Considering all maps, how could we enhance the readability of these maps? What would you like to see added or changed (in terms of color, background, data, graphs...)?

5. Discuss Change Over Time

- We could do this in a few different ways... for the next time... it could very important...
  - Simply map the pattern of fishing as it occurred at some point in the past (10 years ago? Some time just before an important change? A date the community members want to map/compare?).
  - Use change analysis techniques to map areas of significant change (positive and negative) and when change occurred. Then ask fishermen to explain.
- Looking at change, two scenarios...
  - Scenario 1: When the data shows little change:
    - The VTR data suggests little change in primary areas (show map from 2000). Do you agree? Why are patterns so stable?
    - Do you expect a change in primary fishing areas for in coming years?
  - Scenario 2: When the data show significant change:
    - The VTR data suggests significant change in primary fishing areas.

    - Were you fishing from here at that time? What explains the shift in primary area?
    - Should a map of areas important to your community still include this historic area? Why?
    - Do you expect a change in primary fishing areas in coming years?

6. Complete the Meeting

- Your input is essential to this project...
- Would you be willing to continue to provide some help to this project?
    - Re-review data?
    - Provide periodic input or feedback formally or informally?
- Who else do you know that you think we could ask for feedback? Other people knowledgeable about the activities of this fishing community?
- Thanks very much for participating...

Appendix A: Engagement Toolkit, Continued

Talking Points about Data

Type and Processing of Data: There are several ways to develop data on commercial fishing activity – VTR, VMS, and using participatory mapping approaches. Each has strengths and weaknesses. Kevin St. Martin developed this particular method working closely with fishermen and leading fisheries social scientists. Although there are weaknesses to working with VTR data (inaccuracies due to multi-day trips and other factors, missing activity), we think that with the high volume of data points (roughly 100,000 trips recorded per year from Maine – North Carolina – about 40,000 from Mid-Atlantic states), a credible first iteration of maps to inform regional scale planning can be created, with help and advice from fishermen. In most cases VTR data will not be sufficient for informing fine scale decision making processes (e.g. exact placement of wind energy infrastructure, some fisheries management actions). We are interested in supporting opportunities to work with agency and industry partners to use other data types (e.g. VMS, chart plotter data) to create more comprehensive and integrated data products in the future.

The "Communities at Sea" method uses labor time rather than catch or value as a metric indicating areas of importance to the industry. **VTR data is integrated with permit data to define communities based on boat characteristics, fishing gear, and home ports.** The resulting maps have attributes that are useful for planning.

Community or Port Association: A vessel's trips are associated with a particular port

> If the trip in question was landed in that port *and*
>
> > The vessel owner declared that port to be his/her principal port *or*
> >
> > The vessel landed in the port more than 50% of the time.

The idea is to associate trips with particular ports when there is clear evidence that the vessel is a member of that ports' community. There are over 50 principal ports declared by vessel owners in the five Mid-Atlantic states identified in the VTR data from the past 15 years. However, over 80% of trips occur from New York and New Jersey, with the leading ports in terms of trips being Montauk, Point Pleasant, Barnegat, Cape May and Ocean City, MD.

Confidentiality: There are very strict confidentiality protocols established by NMFS. The data we are using was given to us stripped of any personal information (e.g. vessel names, IDs, owners, etc. etc.). We only have data grouped by "communities" (using the method above) and no longer have access to any individual vessel data... Furthermore, we will take extra steps to loop back to NMFS and industry for additional review before anything will go live on Portal.

Appendix A: Engagement Toolkit, Continued

Talking points about Regional Ocean Planning/MARCO

What is MARCO?

- The Mid-Atlantic Regional Council on the Ocean (MARCO) is a collaboration among the states of NY, NJ, DE, MD, and VA for managing ocean resources to improve their health and ensure the waters off the Mid-Atlantic continue to contribute to the region's quality of life and economic vitality. MARCO was formed in 2009 through a signed agreement by the governors of the five states to:
    1. Support the sustainable development of renewable offshore energy to make the Mid-Atlantic more self-reliant and economically stable
    2. Identify and protect important offshore habitats that are critical to sustaining seafood, tourism opportunities, and other job-creating benefits
    3. Prepare coastal communities for regional climate change impacts.
    4. Improve the region's water quality to sustain seafood, tourism and ocean health.
    5. Build capacity for regional ocean planning that will help maximize our Mid-Atlantic economy and our ocean's ecological health.

What is the Portal?

- The MARCO Mid-Atlantic Ocean Data Portal was developed in 2010 as an online mapping tool that consolidates available geo-spatial data, and enables state, federal, and local users to visualize and analyze ocean resource and human use information.

- This effort builds upon and complements other ocean planning activities in the region.

What features does the MARCO Mid-Atlantic Ocean Data Portal have?

- Web-based mapping viewer/data portal displaying the extent of information available about marine waters in the Mid-Atlantic;

- User-friendly interface design with interactive reporting features.

Why was the MARCO Mid-Atlantic Ocean Data Portal developed?

- To support MARCO's commitment to a comprehensive regional approach to ocean planning and management.

- The Portal also addresses the call of the U.S. National Ocean Policy (2010) for regional scale ocean planning supported by a robust ocean data and

- Information management system that includes a wide range of human use, environmental, socio-economic, and regulatory data.

- Assures that states and ocean stakeholders and users in the region have a role in identifying information for incorporation into the Portal and input to guide any future federal regional ocean planning efforts.

What are the objectives of the Mid-Atlantic Ocean Data Portal project?:

Appendix A: Engagement Toolkit, Continued

- The overarching objective is to improve stakeholder and public knowledge about ocean uses and resources through:
    - Educating ocean managers, users, and key stakeholders about the Portal and the data being used to enhance the portal.
    - Identifying data needs and priorities for ongoing data collection and future research.
    - Including reporting and other features that can be used to enhance understanding about ocean resources, and inform ocean planning and management decisions.
    - Supporting MARCO's involvement in evolving federal regional offshore planning efforts.

How are stakeholders involved in the project?

- The *Mid-Atlantic Ocean Data Portal* is being enhanced through an inclusive and transparent stakeholder process using small and larger meetings, personal communication and web-based forums to:
    - obtain peer review of existing data;
    - collect and incorporate the best data available to fill gaps;
    - develop new data related to ocean uses;
    - improve functionality and usability of the Portal; and
    - develop metrics for success.

- This project will also improve the Portal's usability through interactive meetings, additional personal communications, and online tools that actively engage ocean users and key stakeholders, and encourage their participation throughout the planning process.

How will data obtained from stakeholders be used?

- Data will be integrated as digital layers in the system that can be visualized and overlaid with other data.

Appendix A: Engagement Toolkit, Continued

- Data and information identified through stakeholder input, and protocols for the display of the data will be vetted with the stakeholders before making them publicly available.

Who is the Project Team?

- **Tony MacDonald**, Director of the Monmouth University Urban Coast Institute is the principal investigator and project manager.
- **Jeanne Herb** from the Rutgers University, Edward J. Bloustein School is the Stakeholder Engagement Team lead. She is assisted by **Karen Lowrie** and **Matt Campo** of the Bloustein School and **Kevin St. Martin** of the Geography Dept. at Rutgers University

- **Jay Odell**, Mid-Atlantic Marine Director from The Nature Conservancy is the Technical Team lead, supported by **Rick Lathrop** from the Rutgers Center for Remote Sensing and Spatial Analysis and **Charles Steinback** from Ecotrust.
- A **Project Steering Committee** has been set up that includes MARCO Management Board Representative (NY.NJ, DE, MD and VA), and a representative from the National Oceanic and Atmospheric Administration.

Appendix B: Summary of Eastern Shore fisherman responses to communities at sea maps

Communities at Sea Map Review Session
Newport News, 7/15/14
VMRC Office

VA Beach:
The pot/trap maps look really accurate, showing the area fished, and the hot spots shown really are the hot spots. May be missing some activity from fishermen not required to submit VTR but overall great. Agreement with the nearshore gillnet maps out of VB.

Gillnet maps look accurate for recent years but areas of historical importance not shown. In earlier days the effort extended further offshore, out to and beyond the light tower. Further described as an area straight (roughly East) from shore out to 13, even 15 miles, beyond the light tower. "We want to see that open again"

Both reviewers thought the comparison with the "Regional" (all ports combined) map was useful. They indicated the regional map "made sense" / "looked right" to them.

Chincoteague:
Reviewer's fishing activity was likely not shown in the Chincoteague gill net map. There were two issues – one, the filter of Chincoteague association may not be ideal and two, missing activity from fishermen who don't use VTR. He thought the Chincoteague map was fairly accurate – but incomplete. When we reviewed the Regional map (which includes his effort, Wachapreague associated effort, etc) – a very specific area of activity he indicated as missing was actually present. Reviewer indicated that effort extended E. of the lower yellow hotspot – in a line towards the unexploded ordnance mark on the NOAA chart. Images at end of this document are snips from the two maps to show this.

We had a pretty lengthy discussion regarding the infographics showing fisherdays by gear type for Chincoteague, re: the big spikes in 65+ and 65- bottom trawl. The fishermen indicated that before scallop fishery management changes there was a directed fishery for scallops using trawl gear.

Reviewer said he thought the Gillnet map for Chincoteague looked "pretty good". Follow up meetings with him and other lower eastern shore fishermen are needed.

Another fisherman dropped in towards the end of the meeting. He was very interested in the maps and had nothing negative to say about them as far as how they showed 2011-13 activity. He asked a lot of questions. He listened very closely to the description of the variable being mapped (being labor). He was initially skeptical, then nodded affirmatively.

We had a fairly long discussion about the need to incorporate information from earlier years. He said that this will show more activity on the shelf – as compared to current pattern with bands of effort inshore and along the break. He said we need to go back to at least 1998. He said we need to look at a period long enough to capture both a good croaker and a good Atlantic mackerel year. The reason being that these species are both caught in the same general areas on the shelf, but have very different temperature preferences (croaker can handle water temp as high as 96; mackerel more like 68F).

Appendix B Continued: Summary of Eastern Shore fisherman responses to communities at sea maps

Rick Robins offered to work with "Spot" to convene a VA Beach focused meeting with fishermen for us. Rick also submitted the following on a note card: " Newport News based scallop boats may land a preponderance of scallop trips in New Bedford MA, and also Cape May NJ, depending on the Access Area they are fishing, or if they are on an open area trip. Open area trips are increasingly landed in MA by Newport News based boats, due to the regulatory disincentives associated with the Days-At-Sea Demarcation Lines. VA scallop landings have declined 70% from 2009-2013 as a result. So, it may be informative to look at the maps in terms of where boats fish vs. home port, and not just exclusively look at port of landing.

Meade Amory: He was in relative agreement with the maps but indicated that to gain the full insight from the scallop dredge boats we should consider a later sharing of the maps. His opinion was to look at late summer, early fall when the fleet increases. Meade indicated a strong willingness to coordinate with Todd on the establishment of a meeting at Spot's.

Kim Huskey (VA Seafood Council)—While her input and review of the maps was not based on personal water-time, her input and willingness to coordinate with Todd will be an invaluable component to the development of the Virginia efforts with the industry. She shared a strong commitment to coordinate meetings and assist with the convening of representatives from the industry.

Take home: If we want to show important fishing areas in consideration of a dynamic, changing system, we need to consider that fishermen follow fish and fish follow temperature envelopes. The oceanographic conditions during the group of years we select for averaging fishing activity data matter.

Another take home: Clearly if we want to present a full picture of commercial fishing activity we need to use a participatory mapping approach with conch and black sea bass fishermen who don't use VTR. We knew that going in to this meeting. VTR maps are close but perhaps not close enough. Still unclear as to how big a problem this is also for gillnet, but I don't think it's an issue for any other gear types (except for menhaden).

Might want to use a supplemental/overlay approach, as opposed to trying to modify the Communities at Sea maps. We could probably create a spatial data product that includes shapes from a participatory approach in the same layer, but with distinctly different symbology. Menhaden (if Omega will share it) should be a standalone purse seine gear layer.

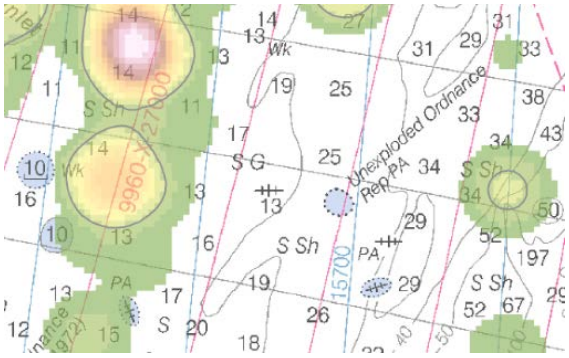
Final take home: Recommend placing a high priority on "unpacking" the "Other" gear category and definitely creating new maps for Charter and for Party/Headboat. A team meeting will be needed (following some initial exploration of the data by CRSSA), to consider a) how we define Communities and b) how we interpret fisherdays or a similar metric. I learned from Kevin that there is a variable in the data for how many customers are on board for each trip – this is great.

Follow ups (to be converted to specific time bound assignments)**:**

- Loop back with the fishermen who were at this meeting to share some draft maps "change analysis" that support (possibly replace, but I think support) these maps, by utilizing more years of data.
- Follow up with specific offers of time to help with this.

Appendix B Continued: Summary of Eastern Shore fisherman responses to communities at sea maps

- Take a careful look at how community port associations are made for the scallop (dredge) trips. The focus could include making sure we aren't "losing" Newport News records solely based on rule changes that are behind more scallops from these vessels being landed in Cape May and New Bedford.
- Look at combining some or all of the VA ports, potentially creating a lower Eastern Shore cluster – Cape Charles north to Wachapreague or Chincoteague, a county delineation would seem appropriate for the Eastern Shore of Virginia
- Change all labels of Groundfish on the maps to Bottom Trawl. While this is VA comment driven change I think "Bottom Trawl" as a label will work as well or better than Groundfish in NJ, NY, MD and DE.
- Need to clarify next steps for new pGIS work to get at maps and potential roles for Monmouth Team and VA CZM.
- Monmouth team needs to produce draft maps for charter and party/headboat. ID a process to compare with previously created pGIS maps of same and decide on best approach for using both together or apart.
- Need to clarify next steps for pGIS work and potential roles for Monmouth Team and VA CZM.



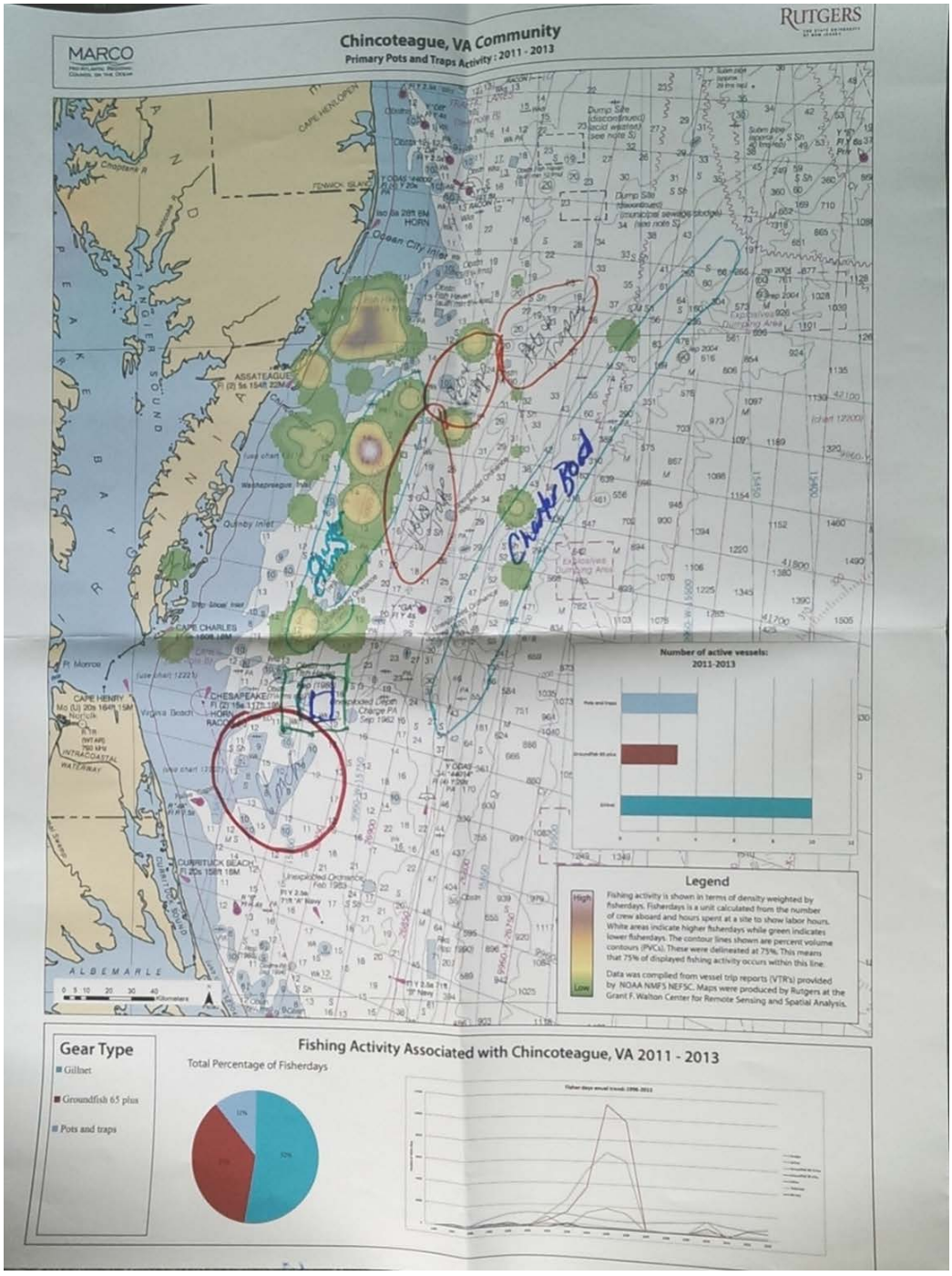
Left  and right map snippets show Chincoteague and Regional Pot/Trap maps, respectively, to pin point the area that Tim was saying was missing (green blob extending to right of yellow blob on the Regional map.

Appendix B Continued: Summary of Eastern Shore fisherman responses to communities at sea maps

Communities at Sea Map Reviews

Map(s)	Review D	Location	Name of Reviev	Local/ Itinerant	Comments
Virginia: Pots and Traps	11/4/2014	Oyster house of Don Miles in Oyster	Don Miles, Wayne Mears	Local	Depicts well the areas used for conch; pretty much stays the same year to year. Eager to talk about wind energy.
Virginia: Gill Net	12/4/2014	Behind Royal Farms	Glen Stevens	Local	No longer fishes in federal waters; only gill nets in state waters for rock fish in May. Croaker not pick up in time frame.
Chincoteague: Groundfish	12/19/2014	At the dock/Chincoteague Fisheries Co-Op	Joe Rose	Itinerant	Groundfish map valid; matches his knowledge except one outlier farthest east of Cape May. Suspects it might be a swordfish location; it is deeper than he would
Chincoteague: Pots and Traps; Gill Net	12/19/2014	Dockside at Curtis Merritt Harbor	John Shertenlieb	Local	Pretty much everything is at <10 fathoms except monkfish, which can go to 30'. Interested in how any wind energy area off ocean city might affect his activity
Chincoteague:Groundfish	12/19/2014	At the dock/Chincoteague Fisheries Co-Op	Michael "Jimbo" Ireland	Itinerant	Valid for ground fish N. of Hudson Canyon; Fluke S. of Hudson Canyon. Geartype should be ground trawl S. of Hudson Canyon; only groundfish N. of Hudson Canyon. Concerns maps will result in further fishing restrictions; especially restrictions to recovered
Chincoteague: Groundfish	12/19/2014	At the dock/Chincoteague Fisheries Co-Op	Shaun Riggin	Itinerant	Groundfish map hits all the places he fishes in winter months, but true groundfish are closer in, and in warmer months would be taking to more northern ports. Maps shows busy shipping channels - that's good. They are dangerous. Hopes maps won't use to add more
Virginia: Gill Net; Pots and Traps	3/26/2015	VIMS, during wind energy meetings	Rick, Sandra Puchalski	Local	Reviewed; no comments.
Virginia Community: Pots and Traps, Gill	3/26/2015	VIMS, during wind energy meetings	Tim Wivell, Scott Wivell	Local	Reviewed all maps, validated gill nets and pots and traps. No omissions or errror they could see.
Chincoteague: Pots and Traps; Gill Net	3/30/2015	Wind energy meeting in Chincoteague	Chris Walker, Danny Bowden, Joe Kelly, Ernie Bowden	Local	for pots and traps. Years 2011 and 2013 were bad years for fishing data; not really good representative years for Communities at Sea maps. Croaker fishing important to area; won't show up because federal permits not required

Appendix B Continued: Summary of Eastern Shore fisherman responses to communities at sea maps



Fishermen circled areas in red where they believed additional pots and traps activity was occurring.

Appendix C – Commercial Fisherman Survey Letter and Survey Instrument

January 23, 2015

PROJECTS ARE UNDERWAY THAT WILL INFORM DECISIONS AT THE STATE AND FEDERAL LEVEL ABOUT OCEAN USE. YOUR PARTICIPATION IN THE ATTACHED SURVEY IS REQUESTED TO HELP ENSURE EASTERN SHORE VOICES ARE PART OF THE DISCUSSION!

«GreetingLine»

Big decisions are being made about how ocean waters are used. Wind energy, sand mining, and off-shore oil and gas drilling are just a few of the interests competing with fishing, shipping, military, and other traditional uses.

The Accomack-Northampton Planning District Commission wants to be sure that Eastern Shore fishers are well- represented in any deliberations about how the waters off Virginia's coast are used. Three projects we are working on give us the opportunity to be sure your voices are heard:

- The Mid-Atlantic Regional Council on the Ocean (MARCO) Communities at Sea data portal,
- The ocean commercial use assessment sponsored by NOAA and the Virginia Department of Environmental Quality, and
- A commercial wind energy area east of Virginia Beach that we would like to make sure you are aware of and involved in during the initial study and construction.

It will take about 3 times longer to read this letter than to do the survey (survey will take 2-4 minutes), but this letter explains why we are doing the survey, and why you should be involved. But if you prefer, skip the letter and go directly to the survey!

MARCO and Commercial Use Assessment

Your name was provided by the VMRC at the request of A-NPDC for a list of all commercial permit holders for fish pots, crab pots, eel pots, horseshoe dredge, or gill nets in seaside Commonwealth waters. **Would you please take a couple of minutes to answer a few questions on the enclosed survey?** Your answers to these questions will help inform the MARCO work and the commercial use assessment.

On the reverse side of the survey is a map. The map selected for you was based on the area indicated on your permit. **Please take a moment to shade, circle, or otherwise indicate the areas in which you work on the seaside.** If you fish or harvest in other areas, please use the map of the entire Eastern Shore to indicate those areas. There is no identifying information on the extra Eastern Shore map, and it will not be related back to your name in any way.

The mapped information will be digitized and aggregated for the report, and individual information will not be reported. We are interested in the picture that forms when all the data is put together, not in any one person's information. If we believe any information, after it is aggregated, would still compromise the confidentiality of a respondent, we simply will not use it.

Appendix C, Continued: Commercial Fisherman Survey Letter and Survey Instrument

The aggregated information will provide an indication of high activity areas, and combined with the recreational information, will depict areas with high potential for competition among different users of ocean-side waters off Virginia's Eastern Shore.

Wind Energy Areas

Regarding the wind energy area, the Department of Energy recently awarded a Virginia consortium $47 million to construct two six-megawatt ocean-scale test turbines by 2017 in a research lease area just west of the larger wind energy area leased to Virginia Dominion Power in 2013. Lessons from this research project will be applied to the larger Dominion Virginia Power lease area, so if you are interested in either area, your participation at this point is important.

The Accomack-Northampton Planning District Commission has been retained to coordinate with Eastern Shore commercial and recreational fishers who might have a current or future interest in fishing within or around the leased research area, during which time management practices will be developed in collaboration with interested fishers.

As part of that work, A-NPDC will be working to ensure we have the best possible sources of data about where fishing occurs, using federal vessel trip reports and data collected for a 2014 Recreational Use Assessment Report generated by A-NPDC for NOAA and the Virginia Department of Environmental Quality under the Coastal Zone Management Program. We will ask commercial fishers, recreational charter captains, and recreational fishers who have chart plotter data if they would be willing to share that data under the strictest terms of confidentiality. Again, the research team is interested in the picture the data presents when aggregated, rather than any individual's data.

A map of the wind research area is included in the survey. **Please indicate your level of interest in this process by completing the related questions on the bottom half of the survey sheet.** If you would like more information about the wind energy research project, called VOWTAP, this Dominion link provides background and updates. https://www.dom.com/wind

Please use the self-addressed, stamped envelope to return the questionnaire and the extra map, if you marked it, to the ANPDC office **by February 6.** If you have any questions, please contact Connie Morrison at 757-787-2936, ext. 127.

Please keep this letter for your reference.

Thank you for your assistance.

Connie Morrison
Regional Planner
Accomack-Northampton Planning District Commission
757-787-2936, ext. 127

Appendix C, Continued: Commercial Fisherman Survey Letter and Survey Instrument

«lname», «fname», «street», «city», «state» «zip» «WATER_NAME»

COMMERCIAL FISHING SURVEY FOR OCEAN-SIDE WATERS OFF VIRGINIA'S EASTERN SHORE

Have other people or activities ever interfered with or impeded your work anywhere in the seaside waters? Y___N___
Comments: _____

If so, are they conflicts with other commercial uses, recreational uses, or some other type of interference? _____
Please describe: _____

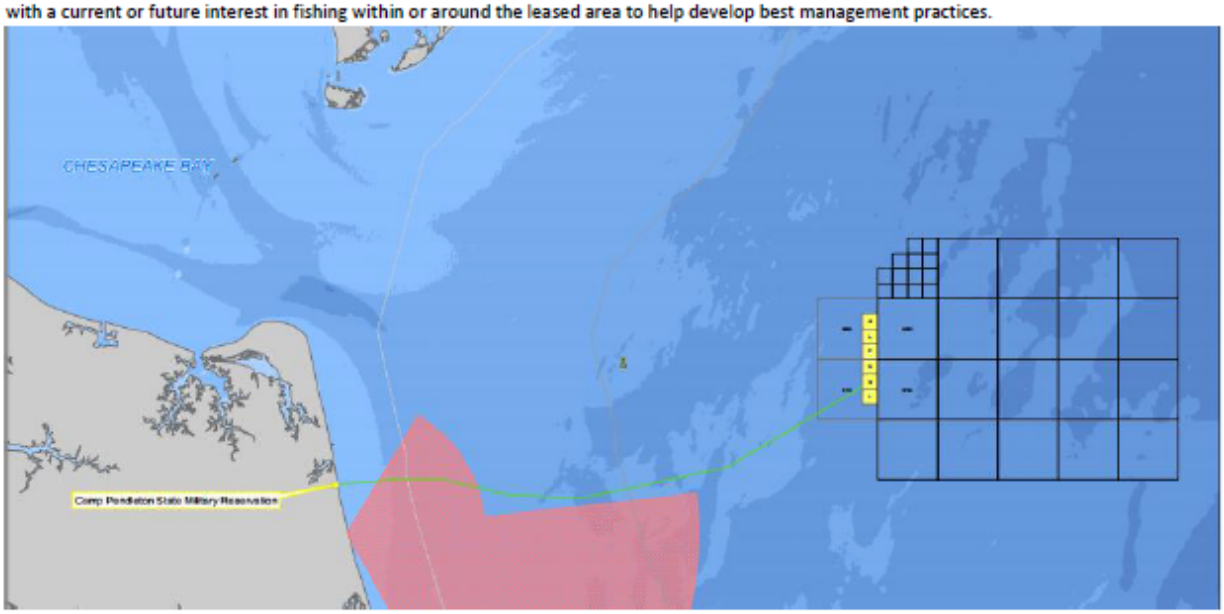
If they stem from recreation, which types of recreation uses cause conflicts or interference for your commercial work? _____
_____

Are there any recurring patterns to the conflicts –whether time of day, seasonal, or some other pattern? If so, please describe.
_____

Please describe commercial fishing/harvesting considerations that decision makers should take into account to when making decisions about seaside and ocean waters – whether near-shore or offshore. _____
_____
_____

VIRGINIA WIND ENERGY AREA

In Sept. 2013, Dominion Virginia Power won a $1.6 million wind energy lease for an area 24 nautical miles east of Virginia Beach (see map below – the lease area is the large grid). A separate consortium – VOWTAP – has received approval for smaller research lease area for two six-megawatt test turbines just west of the larger wind energy lease (the southernmost white squares on the map), with a cable connecting the turbines, and one delivering generated power to the mainland. A-NPDC has been contracted to coordinate with Eastern Shore commercial and recreational fishers with a current or future interest in fishing within or around the leased area to help develop best management practices.



If you would like to receive information about this project and how it might affect fishing opportunities in and around the wind energy lease area, and/or participate in the development of fisher friendly practices in and around the wind energy area, please indicate below. Lessons from this research project will be applied to the larger Dominion Virginia Power lease area, so if you are interested in either area, your participation at this point is vital.

Phone: _____ (work, home, or mobile? Circle which) e-mail: _____
Is your mailing information above correct? Y __ N __ If not, please make corrections above.
I would be willing to attend a meeting to learn more Y__ N__ Best way to contact me is: phone__ mail__ email__
I would be willing to share my fishing chart plotter data for research purposes if kept absolutely confidential. Y__ N __

Appendix D: Commercial Fisheries Landings, Virginia Waters, 2010-2014

Eastern Shore Commercial Fisheries Landings, Virginia Waters, 2010-2014

	2010		2011		2012		2013		2014	
	POUNDS	VALUE	POUNDS	VALUE	POUNDS	VALUE	POUNDS	VALUE	POUNDS	VALUE
BASS, STRIPED	0	$0	0	$0	0	$0	44,190	$174,422	26,766	$102,445
BLOOD ARK, CLAM	1,202	$5,759	1,828	$27,799	1,323	$28,109	1,721	$31,234	1,850	$29,258
BLUEFISH	6,015	$3,567	7,138	$3,596	9,905	$8,923	22,876	$18,164	9,674	$6,867
CONCHS	25,417	$21,981	72,653	$115,271	104,166	$178,450	53,046	$68,910	38,980	$61,544
CRAB, BLUE	2,032,593	$1,864,140	2,489,052	$2,028,555	2,423,202	$1,960,654	1,529,463	$1,954,391	1,176,638	$1,474,659
CRAB, HORSESHOE	108,670	$61,401	126,328	$80,890	62,374	$45,767	72,328	$94,272	115,207	$140,310
CROAKER, ATLANTIC	67,489	$78,085	118,429	$138,402	156,204	$188,357	33,617	$45,701	67,140	$85,701
DRUM, BLACK	17,378	$60,825	31,701	$110,954	19,536	$64,739	50,839	$38,129	53,269	$39,951
FISH, OTHER INDUSTRY	15,168	$844	13,749	$2,783	20,366	$6,493	28,564	$10,168	56,590	$17,626
FLOUNDER, SUMMER	47,667	$118,452	37,438	$90,107	16,776	$40,140	8,896	$27,512	13,458	$44,600
MENHADEN	6,465	$194	3,242	$259	24,522	$1,605	54,718	$3,966	45,977	$3,400
MINNOW	84,660	$80,353	81,414	$85,621	85,736	$90,429	41,824	$49,081	68,303	$78,109
OYSTERS, EASTERN	56,740	$229,115	77,536	$343,209	87,186	$603,227	91,682	$707,488	123,599	$989,654
PUFFER, NORTHERN	4,155	$21,826	5,090	$26,810	1,571	$4,511	2,800	$11,230	8,011	$32,170
QUAHOG	1,119,861	$5,479,244	1,055,453	$9,381,639	1,153,990	$9,572,547	1,091,448	$10,029,371	1,328,333	$11,565,968
SEATROUT, GREY	908	$1,372	446	$646	2,255	$3,617	3,182	$5,481	2,029	$3,785
SILVERSIDE, ATLANTIC	0	$0	7,267	$9,084	26,464	$33,079	4,304	$5,380	17,748	$22,185
SPECIES OTHER	47,540	$52,435	39,425	$34,411	34,675	$15,281	87,775	$30,508	17,081	$18,908
SPOT	22,580	$23,687	138,322	$146,195	31,710	$52,359	192,119	$292,414	133,640	$227,329
WHITING, KING	41	$32	228	$143	427	$808	773	$1,413	262	$421
TOTALS	3,664,550	$8,103,312	4,306,739	$12,626,374	4,262,387	$12,899,094	3,416,165	$13,599,234	3,304,555	$14,944,888

Source: VMRC

Appendix E: Summary of Commercial Fisherman Survey Responses

PERMIT TYPE	WATER BODY	SOURCE OF CONFLICT	EXPLANATION	SEASONAL	CONSIDERATIONS DECISION MAKERS SHOULD TAKE INTO ACCOUNT
GILL NET	CHINCOTEAGUE BAY	COMMERCIAL, ENVIRONMENTAL	COMMERCIAL USE FOR AQUACULTURE, POLLUTED WATER, CLOSED AREAS CAUSED BY BUILDING HOMES ON WETLANDS, SEPTIC, ETC.		CONSIDER THE ENVIRONMENTAL IMPACTS THAT THE PROJECT WILL HAVE ON WATER QUALITY AND BE CONSIDERATE OF PEAK FISHING/CRABBING TIME FOR OUR COMMERCIAL USE, I.E. SPRING, SUMMER & FALL.
CRAB POT	CHINCOTEAGUE BAY	COMMERCIAL	TOO MANY PEOPLE HOGGING LICENSES. TOO MANY GILL NETS		DECISION MAKERS NEED TO LAYOFF
CRAB POT	UNCLASS SEASIDE BAYS & RIVERS	COMMERCIAL	LOST 30 CRAB POTS TO DREDGE BOAT.	NO	HAVE DREDGE CO. PAY FOR POTS LOST
GILL NET	CHINCOTEAGUE BAY	COMMERCIAL	OTHER FISHERMEN	SEASONAL	
GILL NET	CHINCOTEAGUE BAY	COMMERCIAL	GILL NET BLOCKING MY FISHERY FROM LANDING ON SHORE	NONE	BOTTOM CONTOURS, HISTORY OF HOW OFTEN THAT AREA IS FISHED, HOW BIG OF A NAVAGATIONAL HAZARD WILL IT BE.
GILL NET	SOUTH BAY	ENVIRONMENTAL	ELL-GRASS. IT GETS IN OUR NETS AND MOTOR WHEELS AND STOPS THEM.	NONE	NONE
CRAB POT	CHINCOTEAGUE BAY	LEGISLATIVE/ POLICY	ALL THE NEEDLESS RULES & REGULATIONS PUT ON US BY THE COMMITTEE THAT MAKES THEM UP.	2:00PM TIME LIMIT, POTS ALLOWED, BUSHELS ALLOWED	THE PEOPLE WHO MAKE THE RULES SHOULD BE WATERMEN, NOT DR'S & LAWYERS. WINDMILLS WILL OT AFFECT MY CRABBING. I DON'T THINK.
CRAB POT	CHINCOTEAGUE BAY	LEGISLATIVE/ POLICY	INCREASED AMOUNT OF LEGISLATION ON JOB, CUT BACKS ON POTS & QUOTAS		LONG TERM ACCESS TO THE AREA, GET CHANGE IN MIGRATORY PATTERN OF FISH & CRABS
GILL NET	OCEAN (E SHORE)	OTHER GOV, RECREATIONAL, COMMERCIAL	VIRGINIA BEACH. THE MILITARY WHICH IT WAS SHORT TERM. MARINE TRAFFIC. GEAR, CRAB POTS & GILL NETS, ETC.	USUALLY MIDDLE OF THE DAY	GEAR, CRAB POTS & GILL NETS, ETC.
CRAB POT	CHINCOTEAGUE BAY	NONE	NONE		
CRAB POT	UNCLASS SEASIDE BAYS & RIVERS	NONE			
CRAB POT	BURTON'S BAY	WALLOPS, RECREATIONAL, COMMERCIAL,	NASA ROCKET LAUNCHES - STOP BOATERS THE DAY OF LAUNCH; NOT ABLE TO WORK THE DAY OF LAUNCHING. DRAGGER, SPORT FISHERMAN, CONCH POTTERS, ANY BOATERS INTERFERE.	WHEN LAUNCHING	POLUTING THE ENVIRONMENT, MAKING LAWS THAT NOT WORKING ANYMORE, PEOPLE MAKING DECISIONS THAT HAS NOT EXPERIENCE THE COMMERCIAL FISHERMAN WORK.
CRAB POT	CHINCOTEAGUE BAY	WALLOPS	NASA ROCKET LAUNCHES. CLOSED AREAS FOR COMMERCIAL USE AND RECREATIONAL USE.	ROCKET LAUNCHES	YOU CAN'T CLOSE AREA WHERE WE WORK & PLAY
FISH POT		WALLOPS	COMPLETE AREA CLOSURES COST SIGNIFICANT FINANCIAL DAMAGES		ONE GOOD WEATHER DAY CLOSURE CAN COST MILLIONS. AREA CLOSURES TOTALLY DAMAGE LOCAL ECONOMY. WORK WITH US, NOT AGAINST US. WRECK AND BOTTOM STRUCTURE MUST BE AVOIDED.
GILL NET	OCEAN (E SHORE)	WALLOPS	CLOSE AREAS FOR ROCKET LAUNCH		TO CONTACT COMMERCIAL FISHERMEN ABOUT AREAS THAT ARE NEEDED FOR THE FISHING INDUSTRY THAT CONTRIBUTE TO OUR INCOME, BEFORE USING THEM FOR OTHER MEANS
GILL NET	OCEAN (E SHORE)	WALLOPS	SELF-EXPLANATORY		CONCH POTTING & GILL NETTING
GILL NET	OCEAN (E SHORE)	WALLOPS	NASA ROCKET LAUNCHES		I HAVE NO ISSUES WITH FIXED STRUCTURES BEING ERECTED.
GILL NET	OFFSHORE EASTERN SHORE	WALLOPS	ALL SEASIDE		SHOULD KEEP AREAS SIZES TO A MINIMUM.

Appendix E Continued: Summary of Commercial Fishermen Survey Responses

PERMIT TYPE	WATER BODY	SOURCE OF CONFLICT	EXPLANATION	SEASONAL	CONSIDERATIONS DECISION MAKERS SHOULD TAKE INTO ACCOUNT
GILL NET	OFFSHORE EASTERN SHORE	WALLOPS	ALL SEASIDE		KEEP AREAS SMALL
GILL NET	OCEAN (E SHORE)	WALLOPS, OTHER GOV, RECREATIONAL	WALLOPS ISLAND ROCKETS AND CAMP PENDLETON EXERCISES. HOOK & LINE FISHERMAN IN VA. BEACH LOSING HOOKS IN NETS AND THEN DAMAGING THE NETS, FLAGS OR POLYBALLS IN RETALIATION WHEN THE ROCKFISH COME CLOSE TO THE BEACH IN THE SPRING	SPRING	IMPOSSIBLE TO MAKE A RECOMMENDATION WITH NO INFORMATION AS TO WHAT YOU ARE TALKING ABOUT. ACCESS, ACCESS, ACCESS, WE CAN'T CATCH FISH IF WE CAN'T WORK IN AN AREA. I BELIEVE EVERYONE HAS LEARNED TO WORK TOGETHER AND STAY OUT OF EACH OTHERS WAY TO A LARGE EXTENT THAT'S NOT TO SAY YOU DON'T SEE THE OCCASISONAL YAHOO (ON BOTH SIDES) THAT THINK THEY OWN EVERYTHING AND EVERYBODY ELSE HAS THE GET OUT OF THEIR WAY, BUT AS A GENERAL RULE THATS A SOLUTION LOOKING FOR A PROBLEM
CRAB POT	HOG ISLAND BAY	ENVIRONMENTAL	NATURE CONSERVANCY TOOK PUBLIC OYSTER GOUNDS AND DELCARED THEM A SHELLFISH SANCTUARY KEEP OFF. THE NATURE CONSERVANCY WILL NOT PAY TAXES; PUTTING MORE TAX ON ME. THE NATURE CONSERVANCY IS DICTATING COUNTY POLICY.		I WANT WIND POWER ON THE BARRIER ISLANDS AND GAS DRILLING. WE NEED CHEAP ENERGY TO PROGRESS.
CRAB POT	UNCLASS SEASIDE BAYS & RIVERS	ENVIRONMENTAL	NATURE CONSERVANCY HAS TAKEN GROUNDS WE OYSTER ON.		
CRAB POT	CHINCOTEAGUE BAY	NONE			
CRAB POT	CHINCOTEAGUE BAY	NONE			
CRAB POT	CHINCOTEAGUE BAY	NONE			
CRAB POT	OCEAN (E SHORE)	NONE	NONE	NONE	NONE
CRAB POT	UNCLASS SEASIDE BAYS & RIVERS	NONE			
CRAB POT	UNCLASS SEASIDE BAYS & RIVERS	NONE			THE DANGER TO OYSTER & CLAMS AQUACULTURE ALONG THE SHORE AND CRABBING IN THE WATERS OF THE BARRIER ISLANDS - POLLUTION FROM FUELS AND CHEMICALS AND SUCH ARE A BIG THREAT.
EEL POT		NONE			TIME OF THE YEAR, WEATHER
FISH POT		NONE			I HOPE IT DOESN'T MESS WITH THE FISH MIGRATION.
GILL NET	CHINCOTEAGUE BAY	NONE	NONE	NONE	NONE
GILL NET	OCEAN (E SHORE)	NONE	-	-	ANY KIND OF POLLUTION TO OUR WATER WAYS
DREDGE		RECREATIONAL	MATTER OF KAYAK PADDLES HITTING, RIPING NETS AND EXPOSE CLAMS TO BULLFISH	ANY HOURS - APRIL THROUGH DECEMBER	TO MAKING A OPPORTUNITY FOR KNOWLEDGE OF BAY AND OCEAN WATERS. WE ARE IN A SAILING BUSINESS AND NEED ALL THE HELP WE CAN GET BY A JOB.
GILL NET	CHINCOTEAGUE BAY	RECREATIONAL, COMMERCIAL	RECREATIONAL FISHERMAN AND CRABBERS.	SUMMER IS THE WORST	
CRAB POT	UNCLASS SEASIDE BAYS & RIVERS	RECREATIONAL, COMMERCIAL, OTHER GOV,	CUTTING BOUYS ON CRAB POTS, RUNNING OVER EQUIPMENT; LEASED OYSTER GROUNDS	DURING SPRING FLOUNDER SEASON	NAVIGATION AND RESTRICTING WHEN OR WHERE YOU CAN TRAVEL
GILL NET	OCEAN (E SHORE)	RECREATIONAL, COMMERCIAL, WALLOPS	THEFT AND VANDALISM; WALLOPS CLOSING AREA FOR LAUNCH	SUMMER	WE WORK YEAR ROUND, BOTH INSHORE AND OFF SHORE. WALLOPS AND ANY OTHER NEED TO CONSIDER THE EFFECT OF CLOSURES. WE ARE LIMITED DUE TO WEATHER AND CAN'T AFFORD TO MISS TIME DUE TO CLOSURES

Appendix E Continued: Summary of Commercial Fishermen Survey Responses

PERMIT TYPE	WATER BODY	SOURCE OF CONFLICT	EXPLANATION	SEASONAL	CONSIDERATIONS DECISION MAKERS SHOULD TAKE INTO ACCOUNT
CRAB POT		OTHER GOV	US PARK SERVICE REQUIRES A PERMIT FOR WATERS WITHIN 1/2 MI OF ASSATEAGUE. PARK SERVICE WANTS TO BAN THE HAND HARVESTING OF HORSESHOE CRABS ABOVE THE MEAN LOW WATER MARK OF THE BODY OF WATER "TOM'S COVE " SAYING THAT WE ARE TREASPASSING. ONLY 15 HAND HARVESTER LISCENSES IN THE STATE OF VIRGINIA.	THIS BAN IS SUPPOSED TO BEGIN THE YEAR 2015.	NO ONE OR ORGANIZATION SHOULD MAKE DECISIONS ON ANYTHING ULESSS THEY HAVE EITHER EXPERIENCED THE ACTIVITY 1ST HAND THEMSELVES OR GET MUCH MORE FACTS AND INPUT FROM THE WATERMAN THAT IS OUT IN THE FIELD EVERY DAY THEMSELVES. FULL-TIME WATERMAN NEED SOME BACKING, SOME HELP WHEN PARK SERVICE & FISH AND WILDLIFE TRIES TO INTERFERE WITH US MAKING AN HONEST LIVING.