Protecting Offshore Fish and Fish Habitat in the Mid-Atlantic Ocean

A SPECIAL PUBLICATION OF THE AMERICAN LITTORAL SOCIETY

January 2021
Foreword

Our love of the ocean, our connection to the ocean, is passed on by lived experience. Putting a fishing rod in a granddaughter’s hand, building sandcastles with your childhood best friend. Taking a walk hand in hand with a loved one. Every experience, every moment spent near or on the ocean feels like it imprints itself into our very DNA. It moves us to protect it.

For almost sixty years, the American Littoral Society has worked to forge a path forward for coastal conservation. To protect our very human connection to the ocean. One way we’ve done that is by bringing people who love the ocean to the table where decisions are made. To the table where their voice can be heard, where their lived experience matters. A table where multiple decision-makers plan for new and upcoming ocean uses with the advice of people like us who love the ocean.

This report stems from the Society’s work to help drive the sense of connection people feel with the ocean. We want to thank the Gordon and Betty Moore Foundation for supporting our work to connect people to ocean planning and the Spark Fund for helping to make this report possible. We want to thank Susan Kennedy for her work to develop our understanding of fish and fish habitat protections, without which we could have never gotten this far. We want to thank Julia LeMense for her work to help us detangle the knotted story around the PFAs Rule and consistency. We want to thank the coastal managers in the Mid-Atlantic region, and at the Mid-Atlantic Regional Council on the Ocean, for forging a more coordinated, collaborative future. Finally, we want to thank the numerous anglers who welcomed us into their favorite prime fishing spots and showed us with words their love for the ocean and fish.

This report is dedicated to Jeff Dement, the soul of the Littoral Society, a true champion of nature and our connection to it, and an all-around damn fine fisherman. He will forever be missed, but forever celebrated.

Please cite this report as American Littoral Society. 2021. Protecting Offshore Fish and Fish Habitat in the Mid-Atlantic Ocean. Helen Henderson and Sarah Winter Whelan with contributions from Tim Dillingham and Jeff Dement. Highlands, N.J.

See an online summary of this report at protectfish.org.

Cover photo ©Herb Segars

The American Littoral Society promotes the study and conservation of marine life and habitat, protects the coast from harm, and empowers others to do the same.
The ocean is under stress, worsened by climate change. Every single day humans make demands on the ocean. Some demands have led to overfishing, nutrient pollution, ecosystem degradation, and plastic pollution. As populations increase, so do our demands, and at a time where we are seeing our ocean waters warm, acidify, lose oxygen, and rise. Storms come earlier and stronger, flooding is more frequent, fish are moving north. As uses like offshore shipping, ocean mining, and fishing increase, and plans for large offshore wind energy projects become reality, there will be ripple effects to the long-term health of our ocean and coasts for decades to come.

The Mid-Atlantic ocean is changing, which impacts important recreational fish and fish habitat areas. Climate change is already impacting the Mid-Atlantic Bight and the larger Northeast Shelf Large Marine Ecosystem, placing crucial benefits and services like recreation, fishing, and coastal community safety and economies, to name a few, on the line. Anglers and coastal managers see in real time fish shifting northward as ocean waters warm and acidify and conflicting uses mar or destroy important fish habitat.

Mid-Atlantic decision-makers are looking to the ocean for solutions, which may also impact fish and fish habitat areas. With even greater ecosystem and climate impacts on the horizon, Mid-Atlantic states and federal agencies are looking to the ocean and coasts for solutions. The demand for sand along Mid-Atlantic coastlines in the wake of disappearing beaches from intense storms and sea level rise has led to a hunt for offshore sand resources along the eastern seaboard. New Jersey anglers and the Littoral Society have long been concerned with the real identified impacts to offshore fish habitat from sand mining. In addition, the development of offshore wind in the Mid-Atlantic Bight will be necessary to ensure the U.S. transitions to fully renewable energy from dirty fossil fueled energy sources to mitigate carbon dioxide emissions. Offshore wind must be developed and sited responsibly, because even humans rely on the ocean.
with its climate mitigation benefits, it can have impacts to the offshore environment.

**Mid-Atlantic states protect fish and fish habitat in many ways, with strongest regulatory protections found through state Coastal Policies identified in federally approved Coastal Management Plans.** States protect fish and fish habitat in a variety of ways, but one of the strongest tools a state has to protect them during the development and permitting of activities like offshore sand mining or wind development is through a federally approved Coastal Management Plan under the authority granted to states in the Coastal Zone Management Act.

Mid-Atlantic states use a variety of enforceable policies in their Coastal Zone Management Act-approved programs to protect fish and fish habitat. Some focus on types of ecosystems, some on coastal uses, and some on both. What each has in common is the purpose of serving in the interest of protecting important state coastal resources. One rule, the New Jersey Prime Fishing Areas Rule stands out.

**One important coastal policy is New Jersey’s Prime Fishing Areas Rule.** New Jersey’s coastal policies identify a set of special areas, which are so naturally valuable, important for human use, hazardous, sensitive to impact, or particular in their planning requirements that they require individualized, focused attention and special management rules. Prime Fishing Areas (PFAs) are a part of New Jersey’s special areas. PFAs include tidal water areas and water’s edge areas which have a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity and include:

- all coastal jetties, groins, public fishing piers or docks and artificial reefs;
- features such as rock outcroppings, sand ridges or lumps, rough bottoms;
- aggregates such as cobblestones, coral, shell and tubeworms;
- slough areas and offshore canyons;
- areas identified in “New Jersey’s Recreational and Commercial Fishing Grounds of Raritan Bay, Sandy Hook Bay and Delaware Bay and The Shellfish Resources of Raritan Bay and Sandy Hook Bay” Figley and McCloy (1988); and
- those areas identified on the map titled, New Jersey’s Specific Sport Ocean Fishing Grounds.

Permitted uses for Prime Fishing Areas include recreational and commercial fishing and shellfishing, scuba diving, and other water related recreational activities, but prohibited uses include sand or gravel mining which would alter existing bathymetry such that it reduces the high fishery productivity of these areas.

The Prime Fishing Areas Rule contains a unique aspect as there are both unidentified PFAs fitting the Rule’s general description as well as a set of identified, mapped PFAs found on a digital map. Not only are these areas identified and mapped, but they extend several nautical miles into federal waters off the coasts of every Mid-Atlantic state except Virginia, though concentrated off New Jersey. Given the PFAs Rule status as part of New Jersey’s enforceable policies, it creates obligations within the New Jersey Department of Environmental Protection (NJDEP) and often federal agencies looking to propose activities offshore to review the potential impacts to PFAs found within proposed project areas.

It is important to understand how decision-makers have interpreted enforceable policies like the PFAs Rule in planning, regulatory and federal consistency reviews. This project reviewed publicly available documents and identified five main takeaways about the operation of the PFAs Rule. First, the PFAs Rule can...
8 | Executive Summary

be viewed as a static set of fixed areas and proposed activities are considered as either being “in” or “out” of an area, even though the PFAs Rule, on its face, is broader than fixed areas. Second, in some cases, the PFAs Rule is considered and the proposed activities are deemed consistent if they are among the enumerated permitted uses. Third, in some cases the PFAs Rule is considered and the proposed activities deemed consistent if they are not expressly prohibited. Fourth, in the most significant examples, expressly prohibited activities have been allowed to proceed as conditionally approved and thus consistent, with no clear rationale provided as to how those conditions satisfy the intent of the PFAs Rule and its prohibition.

Finally, and importantly, it appears the PFAs Rule leads some reviewers to conflate prime fishing grounds with Prime Fishing Areas. PFAs include as a subset the identified grounds, but extend more broadly to “tidal water areas and water’s edge areas which have a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity.” The plain text of the Rule requires a factual, case-by-case analysis of an area’s historical capacity to support fishing activity. The instances in which the PFAs Rule has been applied suggest that the NJDEP and those seeking consistency determinations have often taken an unnecessarily narrow view of the rule’s protections by not looking at historical fishing or relying solely on mapped PFAs. This has shown up as conditional approvals or modified activities meant to limit PFA impacts.

Prime Fishing Areas are important to New Jersey’s recreational fishing community who should be important stakeholders in state and federal planning and permitting outreach. In the 2003 PFA Rule amendment, New Jersey prioritized the voices of recreational fishermen. Anglers consistently fish in and around New Jersey’s PFAs and have a wealth of information regarding the status, species, and use of these areas. Yet anglers have been historically under-consulted or consulted in an ad hoc and one-time manner for projects that will impact recreationally important species or their habitat. State and federal coastal managers analyzing coastal areas, potential projects and impacts would do well to increase the outreach and engagement to anglers. Decision-makers should engage anglers to better understand the ocean data portals, provide transparency and opportunities to be a part of how, whether, and when PFAs or similar areas should be studied and protected.

Recommendations

The Society has identified a set of 10 recommendations to assist decision-makers in closing knowledge and process gaps around state protections like Prime Fishing Areas that can lead to better understanding and protection of fish and fish habitat.

1. New Jersey DEP should develop guidance that includes adopting a process for identifying and protecting Prime Fishing Areas. The guidelines should:

- Identify currently unmapped but known or acknowledged areas that exhibit the characteristics and recreational activity identified in the Rule;
- Develop a definition and set standards for what “significant degree” means in determining non-allowable alteration of fisheries productivity value;
- Institute periodic reviews of PFAs species presence or absence with recreational anglers given data gaps in real-time information and shifts in population distributions due to climate change and other ecosystem disturbances; and
- Review bathymetric changes to inform evolving PFA conditions.

2. NJDEP should develop a Geographical Location Description for New Jersey’s Prime Fishing Areas that can complement the rule as an existing special area enforceable policy, adding an additional layer of analysis and consideration for PFAs outside of state waters.

3. NJDEP should develop a public online repository for coastal and...
Part Three

Executive Summary

This online repository should contain the department analyses over the life of a project from start to finish. As the New Jersey sand mining analysis shows, many complex offshore projects tier off older, broader analyses, making it imperative that stakeholders have one place to go to understand the actions the state is taking or has taken in developing and permitting a project in order to engage in conversations around new projects, project phases and modifications or changes to existing projects.

4. NJDEP should require applicants to describe Prime Fishing Areas or fishing grounds being considered in or near a state or federal proposed activity by any commonly-known fishing ground name during the environmental review processes to ensure appropriate recreational angler stakeholder engagement.

5. To meet the increasing demands for offshore resources and increasing potential for conflicting uses and impacts to fish and fish habitat:

   - Member states must review the Mid-Atlantic Regional Council on the Ocean’s (MARCO) purpose and commitments and strengthen them around protecting places like PFAs; and
   - The Mid-Atlantic Committee on the Ocean (MACO) must strengthen its work to better coordinate project planning and siting across the region.

6. Mid-Atlantic states should consider developing a mapped geographic information system (GIS) layer for each fish and fish habitat protective mechanism in order to inform potential resource conflicts as early as possible.

7. MARCO should work with its member states to develop a network and engagement plan for recreational anglers throughout the region to ensure opportunities to capture and integrate on the water experience and observations resident in the recreational angling community.

   - Part of the network's scope could be to assist states in developing areas similar to New Jersey’s mapped PFAs for inclusion on the Mid-Atlantic Data Portal.

8. MARCO and MACO must facilitate additional engagement of stakeholders with their Offshore Renewable Energy work group by adding public interest member voices.

9. Federal regulators should provide permanent moorings for anglers wishing to anchor near the turbines to conduct stationary fishing. This would provide a safer environment for fishermen, while minimizing any interaction between anchoring gear and the structure or cables.

10. Mid-Atlantic states should increase transparency and public access to decision documents regarding impacts to state coastal resources, including to:

    - House and publish federal consistency reviews and on a publicly accessible and searchable web portal; and
    - Develop an online repository for coastal and offshore state or federal projects implicating state coastal resources that contains the department analyses over the life of a project from start to finish.

As uses like sand mining increase and plans for offshore wind become reality, there will be ripple effects to the health of our ocean.
Introduction

The Mid-Atlantic region, including its coastline and open ocean, is a busy place. As the most densely populated region of the country with almost 57 million people, over half live nestled on or adjacent to the waters spanning New York through Virginia. The American Littoral Society has called the Mid-Atlantic home since 1961 in our effort to promote the study and conservation of marine life and habitat, protect the coast from harm, and empower others to do the same.

In the almost six decades of the Littoral Society’s work along the Jersey Shore, the Delaware Bayshore, Jamaica Bay, and the open ocean of the Mid-Atlantic Bight, there has been much change within these ecosystems and the coastal communities that rely on the ocean and coast for their livelihoods.

Scientists, managers, fishermen, and coastal residents see the coast and ocean ecosystems changing in real time. The Mid-Atlantic, home to a diverse array of marine wildlife and ecosystems, is seeing waters warm, acidify, lose oxygen, and rise. Storms come earlier and flooding is more frequent. Fish species are shifting and fishermen are catching their favorite fish earlier or catching fish they’ve never seen before. These changes are just the tip of a climate change iceberg.

These shifts and changes will only grow as climate change impacts worsen. Not only that, but the ocean and our coasts already struggle from overfishing, nutrient pollution, storm damage, and plastic pollution, among other impacts. Given how important the ocean and the coasts are to the health of its people, coastal managers and communities are rightfully concerned with the long-term resilience of these ecosystems.

The ocean and coasts provide us with food security, storm protection, and help drive many parts of the Mid-Atlantic economy. In 2016, the Mid-Atlantic coastal economy was valued at $1.8 trillion. The Mid-Atlantic ocean economy generated almost $57 billion in GDP in 2016, and employed over 780,000 people. The Mid-Atlantic is home to two of the nation’s busiest ports in New York/New Jersey and Hampton Roads, Virginia. Two of the top 10 commercial fishing ports by landed weight or value are found in New Jersey and Virginia and the region has a storied history and connection to fishing, both commercial and recreational. These values - and the jobs and food security they represent - greatly depend on a healthy, productive Mid-Atlantic ocean.

In fact, many socially vulnerable Mid-Atlantic communities rely on commercial and recreational fishing. Figure 1 (next page) shows how commercial and recreational fishing reliance intersect with community social vulnerability, with the
The Mid-Atlantic is also important as a place of recreation and connection. Places like Long Island, the Jersey Shore, the Delmarva Peninsula and Virginia beaches bring people from around the world to enjoy the coast. Families have been traveling to the Mid-Atlantic coastline for generations, which contributes to an important tourism economy. In 2016, the tourism economy alone resulted in $16 billion in wages and 600,000 jobs.1

With these many crucial benefits and services on the line given the greater climate impacts on the horizon, state governments and federal agencies are looking to the ocean and coasts for solutions and answers. Two of the many issues coastal managers are looking at are offshore sand mining and offshore wind development.

These two ocean uses have been of interest to the Littoral Society, not only because of our focus on beach and fish habitat restoration and our fifty years of gathering data on recreational fish but also because they have featured prominently in our work to ensure coastal managers prioritize ensuring healthy ocean ecosystems and sustainable ocean uses through Mid-Atlantic regional ocean planning.

Ocean planning is the process by which managers from state governments, federal agencies, and tribal nations sit at a common table, with input from stakeholders, and develop a plan to ensure the future state of the ocean, in this case the Mid-Atlantic ocean, includes both healthy ocean ecosystems and sustainable ocean uses. This integrated ocean management regime then sets in motion collaborative and coordinated actions at various levels of government to implement those shared priorities. These actions should ultimately lead to better ocean conservation and management across different scales of government and produce a healthier, more resilient ocean.

The Society’s support and participation in Mid-Atlantic ocean planning centers on protecting ocean ecosystems and ensuring that the process lifts up the voices of the people and communities of the Mid-Atlantic as it undertook development of the Mid-Atlantic Ocean Action Plan. This brought us in close contact with recreational anglers and other stakeholders who were not always at the decision-making table. We quickly realized that often the voices of recreational anglers were dampened by other stakeholders wielding larger chunks of the ocean economy.

As we interacted more with recreational anglers it became apparent that offshore wind and sand mining were two important uses with potential impacts to fish and fish habitat. Simultaneously, offshore wind energy development planning efforts (Figure 2) were taking off and states and the Bureau of Ocean Energy Management (BOEM) were conducting surveys to identify offshore sand resources (Figures 3a, 3b, 3c, next page) for future mining needs along the Eastern Seaboard. Both offshore wind and sand mining are seen as critical within the Mid-Atlantic ocean, as tools for protecting coastlines from increasing erosion and storms and decreasing our dependence upon fossil fuels to mitigate climate change.

Our work naturally turned toward how fish and fish habitat might be impacted by both sand mining and offshore wind development. To deepen our own understanding of how fish and fish habitat are protected, the Society commissioned a report detailing how Mid-Atlantic states and the U.S. federal government protect fish and fish habitat. The conclusion from this in-depth analysis is that coastal Mid-Atlantic states can most effectively protect fish and fish habitat through two main levers Congress granted to them in the Coastal Zone

---

Management Act (CZMA) of 1972. The CZMA grants states authority to protect their coastal resources, like fish and fish habitat, from federal activities through federally-approved Coastal Management Plans (CMPs) and also grants them “coastal consistency” power, which allows states to review proposed federal activities and permits that could foreseeably impact the state’s coastal resources.

**Purpose and Scope**

This project is the next step of our work. We took our understanding of how states protect fish and fish habitat through their CZMA coastal management plans and delved deeper into a particular New Jersey enforceable policy, the Prime Fishing Areas Rule. We then paired that with outreach to understand how anglers identify potential impacts to PFAs offshore when considering wind development and sand mining processes.

The purpose of this report is to take that work and provide a better understanding of how the PFAs Rule has been used in coastal decision-making through consistency reviews and in state and regional planning processes and whether the NJ PFAs Rule is unique across other Mid-Atlantic enforceable policies that protect fish and fish habitat. In answering these questions, we hope this report will provide the Society, anglers, and coastal managers with a set of insights and recommendations to strengthen regional and state planning approaches, rules and policies to protect fish and fish habitat in the face of increasing demands for the use of ocean space and resources, and a changing climate.

This report is organized into four sections:

- **Part I** identifies the potential stressors facing fish and fish habitat from sand mining and offshore wind development.
- **Part II** lays out how Mid-Atlantic states protect fish and fish habitat through the powers granted them in the Coastal Zone Management Act. This part focuses on the states’ Coastal Management Plans and their enforceable policies, including New Jersey’s PFAs Rule. Part II lays the groundwork for understanding how the New Jersey PFAs Rule stacks up against other Mid-Atlantic coastal policies to protect fish and fish habitat.
- **Part III** is the centerpiece of the report. Part III discusses and analyzes the PFAs Rule. It looks at the history of the rule and its requirements to limit activities, how PFAs have shown up in permitting and planning for offshore sand mining and wind energy development in the Mid-Atlantic Bight, and whether the PFAs Rule has had any impact in protecting New Jersey’s coastal resources, specifically offshore fish and fish habitat, through New Jersey’s federal coastal consistency powers.
- **Part IV**, the final section, contains the Society’s insights and recommendations based on this analysis.

The report’s scope is limited in three main ways. First, the report looks at two specific offshore uses: wind and sand mining. We made this decision due to the connection to the Society’s work and the connection these issues have to New Jersey Prime Fishing Areas. Second, the scope of the coastal consistency analysis in Part III is limited to the PFAs Rule and is based entirely on a desktop review of existing public materials.

A final note on scope. This project was meant to have an entire piece devoted to the outcomes of recreational angler focus groups the Society was ready to roll out in March 2020. Unfortunately, the global COVID-19 pandemic hit the Mid-Atlantic region hard in the spring, which understandably completely and permanently halted this portion of the project. After the easing of the spring lockdowns, the Society conducted phone and webinar outreach with recreational anglers. While this effort cannot replace the robust focus groups we had planned, we are incredibly grateful to the patient recreational anglers who sat through phone interviews and webinars to discuss PFAs, their fishing history in these areas, and concerns for how previous, new, or expanded offshore development could impact fish or fish habitat within PFAs.
Impacts to Fish and Fish Habitat in the Mid-Atlantic

The Mid-Atlantic ocean is a productive and diverse ecosystem. Figure 4 (previous page) shows how the Mid-Atlantic states sit at the edge of the Mid-Atlantic Bight, an important subregion of the Northeast Shelf Large Marine Ecosystem (NE-LME), found between Martha's Vineyard and North Carolina. This subregion supports recreationally and commercially important fish species, ranging from forage fish to medium and large pelagic species.

Important forage fish found offshore in the Mid-Atlantic Bight include Atlantic herring, mackerel and butterfish. Forage fish are important for other fish species like striped bass that rely on forage fish as bait. Recreationally important fish in the Bight include striped bass and bluefish, with temperature an important environmental driver as both species migrate north when water temperatures warm. Recreationally important fish species like black sea bass and Tautog are found across the Mid-Atlantic’s coastal regions and are “the single most landed recreational fish” in Maryland’s coastal waters.

Climate change is already impacting the Mid-Atlantic Bight and the larger Northeast Shelf LME. The Northeast U.S. Shelf “has experienced some of the greatest warming over the past century ... and some of the greatest rates of sea-level rise of any area around the world.” While this warming is from both climate change and natural oscillations, the changes in several climate indicators are projected to continue, each of which have real impacts to fish and their ecosystems. For instance, increasing air and ocean temperatures can “impact organisms, their habitats, and ultimately the human communities that depend on these organisms and habitats.”

These changes are already having real impacts on fish and other species. When looking at the entire Northeast Shelf LME, the population “distribution of a larger number of species” is shifting toward northeast and deeper waters. This holds true when looking at the Mid-Atlantic Bight subregion where species’ distribution shift is also northeastern. Not only have scientists been observing range shifts, but also range expansions and range contractions for many marine fish and invertebrate species. Most notable among the fishes of the Western Atlantic, is the northern range expansion of black sea bass, and Tautog (blackfish).
Along with the impacts from human-induced climate change, this report focuses on two important human uses of the Mid-Atlantic ocean which the Society has identified will impact recreationally or commercially important fish or fish habitat: sand mining and offshore wind development. In many ways both uses are tied to climate change.

The demand for sand along Mid-Atlantic coastlines in the wake of disappearing beaches from intense storms and sea level rise has led to a hunt for offshore sand resources along the eastern seaboard. New Jersey anglers and the Littoral Society have long been concerned with the well established and recognized impacts to offshore fish habitat from sand mining. In addition, the development of offshore wind in the Mid-Atlantic Bight is a priority for Mid-Atlantic states as they work to transition to fully renewable energy, decrease carbon dioxide emissions, and thus mitigate climate impacts.

**Sand Mining**

Sand is the second most-consumed natural resource on planet Earth, behind only water. In the last 5 years alone the U.S. has increased sand production by 24 percent. While sand seems to be everywhere, not all sand is created equal. The composition of sand is diverse, depending on the location it is mined from and purpose it is mined for. It is made mostly of silica, a common element in the earth and the demand for sand resources exists worldwide. Industrial grade sand containing silica is used to make glass for the automobile industry, food industry, and even household products for the kitchen. Ground up silica is used to make fiberglass insulation and can also be used for other types of specialty glass like test tubes, fluorescent lights, television screens, and computer monitors. Sand is used for construction purposes for buildings to pavement for roads. The best sand for making concrete is not desert sand created by wind, but sand created by water – so from our rivers and along our coasts.

In the United States, the demand for sand to counteract beach erosion from storm damage along the Atlantic coast, to protect our shore tourism industry, coastal homes, and infrastructure has been a controversial and cost-escalating federal and state issue for decades. Recently, climate change has brought stronger and more frequent storms, and along with those storms the recognition of the continuing demand for even more sand. In the Mid-Atlantic region, the Department of Interior has projected an estimated need for federal offshore sand over the next 10 years between 41 - 129.8 million cubic yards (MCY) of sand, depending upon whether states’ demands are closer to the baseline or elevated need scenarios. This increasing demand has resulted in state and federal efforts to plan for future projects by identifying and quantifying future sand resources recognizing these offshore sand resources are finite.

The federal government has been searching for sand for decades. In 1987, Congress authorized a feasibility study for the exploration of solutions to erosion and storm damage problems off the New Jersey coast, which took almost 10 years to complete through a reconnaissance study that identified potential solutions to erosion and storm damage. In the 1990s BOEM began conducting offshore sand resource studies to identify and characterize sand resources. However, it wasn’t until post-Hurricane Sandy that the federal government undertook a broad, widescale, research effort to identify offshore sand resources. BOEM’s Marine Minerals Program developed a “Building a National Sand Resource Inventory” project in recognition that there was a need for more offshore sediment resources in state waters and the frequency and magnitude of recent storms. As a result, BOEM made agreements with 13 Atlantic states for subsequent offshore surveys, which were done through the Atlantic Sand Assessment Project. BOEM utilized approximately $6 million of Hurricane Sandy funding to support identification of Outer Continental Shelf (OCS) resources for projects and to determine future sand needs.

The actual process of offshore sand mining for beach replenishment is documented to have a wide range of consequences on our marine
environment, including disturbances to benthic organisms, food web disruptions, and water quality impacts, such as increased turbidity or release of contaminants. Many of these consequences directly impact fish and fish habitat. Sand mining projects have been known to destroy fish habitat like shoals, lumps or ridges, which are the very features many fish species utilize as habitat. Fish species can also be impacted through the noise of mining, suffer migration pattern interruptions, or forced movement of species, to name a few.

Many conflicts to recreational fish species, fishermen, and their fisheries, can be experienced during ecosystem disturbances due to anthropogenic use and alteration of the marine environment. Focusing narrowly on the practice of sand mining, existing marine habitat is disturbed, in the best case scenario, twice during the initial ‘borrow’. Once during the extraction process at the borrow site, and again at the deposition site in the near-shore surf zone. Sites approved for multiple activities such as routine replenishment projects can have much higher rate and frequency, sometimes as often as every four years throughout a 50 year project. Benthic associated species like winter and summer flounder are highly susceptible to disturbance, and possible mortality from sand mining. Other possibly affected fish species would include: northern kingfish, striped mullet, Atlantic menhaden, Atlantic croaker, black drum, bluefish, weakfish, striped bass, several species of hake (ling), sand tiger, thresher, and smooth dogfish sharks, as well as many species of skates and rays.

All of the above listed fish species are known to undertake seasonal migrations; being present either in the sand borrow areas or the near-shore surf zones at varying times of the year depending upon their unique life history and ecology. It should be noted that sand mining and beach replenishment operations can also cause disturbance and possible harm to the invertebrate communities present, thereby disturbing the local food web which could have a negative effect to fish species that depend on them for forage.

There are many studies and reports that detail these impacts of sand mining to ocean ecosystems. For example, in 2014 the National Marine Fisheries Service (NMFS) assessed the biological impacts to protected species and their habitat from the mining of sand borrow areas offshore of New Jersey and Delaware for beach nourishment and hurricane protection. Of note is the numerous references to how dredging activities impact benthic invertebrates in sand borrow areas, including forage species.

While the assessment focused on direct impacts to endangered species, such as the Atlantic sturgeon, findings on the biological impacts to fish species and critical habitat throughout the region could be similar due to the sheer nature of dredging activities for sand mining. NMFS explained how hopper dredges and other types of hydraulic dredges work, equipped with pumps and suction pipes to collect sand materials and noted that as sand is sucked up the pipes, benthic feeders found at or near the bottom would be vulnerable. The opinion also considers and explains water quality and potential species impacts:

Physical and biological impairments to the water column can occur from increases in turbidity which can alter light penetration. The proposed dredging will cause temporary increases in turbidity and suspension of sediments during dredging operations. As a result, the increase in turbidity can impact primary productivity and respiration of organisms within the project area.

The re-suspension of sediments from dredging and dredged material placement can prevent or reduce gas-water exchanges in the gills of fish (Germano and Cary, 2005; Clarke and Wilber, 2000). The amount of impact that this can have on a species is dependent on the sensitivity of that species. This increase in turbidity can also impact prey species’ predator avoidance response ability due to the decreased clarity in the water column.

The demand for sand along Mid-Atlantic coastlines in the wake of disappearing beaches from intense storms and sea level rise has led to a hunt for offshore sand resources. New Jersey anglers and the Littoral Society have long been concerned with impacts to fish habitat from sand mining.
Increased suspended sediment resulting from dredging can also reduce dissolved oxygen. Low dissolved oxygen conditions can be generated by the resuspension of sediments and the biochemical oxygen demand of the surrounding water (Johnston, 1981). This can be particularly important during the summer months when water temperatures are warmer and less capable of holding dissolved oxygen. Dredging during the warmer months can exacerbate low dissolved oxygen conditions (Hatin et al., 2007a).

Just this year, the National Oceanic and Atmospheric Administration (NOAA)’s National Centers for Coastal Ocean Science published a study entitled A Geospatial Assessment of U.S. Atlantic and Gulf of Mexico Essential Fish Habitat in Relation to Offshore Sand Features. The study included key points and knowledge gaps (italicized in the report) on sand dredging’s effect on fish:

- Fish are most vulnerable to dredging effects during egg or larval stages, spawning periods, or during migration, when compared to other life stages. Demersal species have been suggested to be more vulnerable than pelagic, though evidence is lacking.
- Entrainment of benthic fish and invertebrates occurs locally during dredging. A few studies have examined entrainment rates of fish in estuaries, but rates in marine ecosystems are lacking.
- Turbidity occurs during and shortly after dredging activity, but resuspension of sediments at the borrow area has reoccurred 1.5 years post-dredging. Studies have regularly found turbidity to influence a 3-km radius around dredging, though concentrations are not high enough to cause direct fish mortality.
- Sedimentation may threaten hard bottom and coral reef fish habitats because of burial and coral mortality.
- Underwater sounds during dredging are not severe enough to cause fish mortality, but sounds may persist above ambient conditions for 400 m to 2.7 km.
- Avoidance responses (including response distance) of fish to underwater sounds and turbidity are unknown. Fish behavioral responses will determine habitat loss, disruptions to migration, and other impacts.
- Substrate removal by dredging may result in bathymetric depressions or more homogeneous, flattened topography within the footprint of dredging.
- Recolonization by early successional benthic invertebrates and restoration of the density of individuals have been documented after one year post-dredging, while recovery of the full species assemblage ranges from 2.5 to > 7 years. Full recovery of invertebrate species tends to correspond with a return to the pre-dredging sediment grain size.
- More frequently, or intensively, dredged substrates may take double the time (~15 years) to recover compared to less intensively dredged sites. Frequent dredging tends to change sediment grain size more dramatically than less intensively dredged sites.

The study finds seasonal restrictions are mostly utilized for protected species. There has also been consideration for a variety of other species, which has also led to seasonal restrictions, given the uncertainty surrounding the effects of dredging. These species include: American shad, Atlantic tomcod, blue crab, Gulf sturgeon, shortnose sturgeon, striped bass, winter flounder, brown shrimp, pink shrimp, and white shrimp. Many of these are recreationally important species for anglers who fish in the Mid-Atlantic Bight.

Sand mining’s impact on offshore fish and fish habitat is well documented; as is the ever-increasing demand for new offshore sand resources, especially in the Mid-Atlantic Bight.
Offshore Wind Development

Forty years ago, California was the site of the first commercial onshore (land-based) utility scale wind farm in the United States. After construction, the project developed numerous environmental issues and taught regulators many lessons, including the need for future projects to be responsibly sited. Today, according to the U.S. Energy Information Administration, onshore wind turbines in the United States are the source of about 7.3% of total U.S. utility-scale electricity generation.

Due to the dense population and development of the U.S. Eastern Seaboard, onshore wind farms are not an option for utility scale size projects. Conversely, our outer continental shelf contains undeveloped ocean areas where offshore winds are known to produce higher and steadier wind speeds (Figure 6). Many European countries recognized this and developed their offshore wind farms decades ago. In fact, the United Kingdom is the world’s largest offshore wind market and accounts for just over 36% of installed capacity, followed by Germany in the second spot with 28.5%. America’s journey toward offshore wind was jump-started by the Energy Policy Act of 2005, which authorized the Department of Interior to develop a national program on offshore wind development. Planning for offshore wind has been a slow-moving process with final regulations for the federal OCS Renewable Energy Program not finalized until 2009, with the first two wind turbines to produce energy in federal waters off Virginia only coming online in September 2020.

The first commercial U.S. offshore wind farm to generate power is actually found in Rhode Island state waters. The 30-megawatt, 5-turbine Block Island Wind Farm only came online in 2016. It is also the only project to lend itself to domestic research and findings on offshore wind impacts to the marine ecosystem. Because of this, the U.S. has mostly relied on the decades of European experience and research to understand potential impacts to the marine ecosystem from wind development.

Mid-Atlantic states are now looking to make up for the years of lost opportunity. As of 2020, the Mid-Atlantic region has a combined offshore wind energy production target of almost 23,000 Megawatts. These state goals may be spread out over the next 10-15 years, but they are ambitious goals that could forever change the offshore landscape.

Mid-Atlantic states have actually been preparing and planning for the reality of offshore wind for many years. Using New Jersey as an example, a 2004 Blue Ribbon Panel developed the first examination of developing wind powered generation off the coast of New Jersey. One recommendation from the panel’s final report called for an investment in science and the study of natural resources, which ultimately led to NJDEP’s baseline study on the state’s ecological resources in the Atlantic Ocean. The study encompassed 72 miles of shoreline from the Seaside area east of the Toms River to Stone Harbor and extended 20 nautical miles out to sea. NJDEP collected data on the distribution, abundance and migratory patterns of avian, marine mammal, sea turtle and other species, which was used to identify “suitable areas” for siting possible future offshore wind energy facilities.

The final report, Ocean/Wind Power Ecological Baseline Studies (2010), not only details important information about New Jersey’s offshore ecosystem but also the users of the offshore, like anglers (Figure 7). There are a total of 143 fishing hotspots with 57% of these areas located in the southern half of the Study Area. The locations of these fishing hotspots are often dictated by structural features, such as faults, seamounts, and seafloor topographic features.

Figure 6: Mid-Atlantic Bight Monthly Wind Speeds, February (Mid-Atlantic Ocean Data Portal).

Figure 7: Major commercial fishing ports and recreational fishing hotspots found in the Study Area and vicinity (NJDEP EIS Final Report, Volume IV, p3-27).
as shoals, ridges, lumps, banks, shipwrecks, and artificial reefs. These structural features provide prime fishing sites for anglers targeting Atlantic striped bass (Morone saxatilis) and bluefish around shoals; bluefish and summer flounder near ridges; and black sea bass and tautog (Tautog onitis) around shipwrecks/reefs.

In addition, the New Jersey Artificial Reef Program, one of the largest on the east coast, consists of over 1,000 reefs and 100 vessels dispersed among 15 ocean sites, nine of which are located within the Study Area.30

Ten years later, in order to support New Jersey’s new 7,500 MW by 2035 goal, Governor Murphy’s administration developed an Offshore Wind Strategic Plan (OWSP). The OWSP provides the blueprint for New Jersey’s path to a clean energy future while recognizing the challenges of developing offshore wind responsibly. The OWSP details environmental and natural resource protection recommendations, including a call for an overdue update to the 2010 baseline study.

When looking at the potential impacts to the marine ecosystem from offshore wind development, one needs to look at the four distinct phases of development: preconstruction, construction, operations, and decommissioning.31 It is important because varying activities take place throughout the planning, development, and operational life of a wind facility.

During the pre-construction phase when surveying occurs, impacts may occur to fish species that are susceptible to acoustic surveying or noise generating and bottom-disturbing surveys.

The construction phase of offshore wind development includes installation of foundations for turbines, offshore substations, and the cables necessary for bringing power onshore to the electrical grid. The construction of offshore wind turbines will initially cover and alter the existing habitats at each individual tower site, and onshore sub-benthic cabling route. Given that the New York Bight is predominated by a somewhat gently sloping sand bottom habitat, the most valuable habitat would be the comparatively rarer; rocky, coral, sand ridge, slough, lump, or structure (reef) habitat. Construction activities adjacent to these habitat types could contribute to habitat loss, change the benthic community, initiate sediment disturbance, and change water quality. There may be loss of access to fishing activities during construction. Noise could be an impact to sensitive species as certain turbine types may require pile driving.

It is anticipated that, over time during operation the turbine tower structure and associated protective rip-rap field will function as a structure and reef habitat, and thereby benefiting fishes associated with that habitat, such as; black sea bass, tautog, cunner (bergall), scup, bluefish, mahi-mahi, tunas and billfishes, as well as a variety of elasmobranchs (sharks, skates, and rays). Many of the aforementioned species will only be seasonally present at differing times of the year.

Recently, the University of Maryland’s Center for Environmental Science in particular studied black sea bass, their baseline movement behaviors and condition, in order to better understand the impacts of wind development. The research found that black sea bass is a good “model species” for wind energy impacts because they are found within many Mid-Atlantic and New England wind energy areas. Researchers note that black sea bass have “narrow home ranges focused on wreck structures” and that a decrease in vertical activity could be “a key indicator of wind energy construction and operation impacts.”32 This fidelity could also help in studies around gradient impacts and the “so-called reef effect.”33

The 2010 NJDEP ecological baseline study discussed potential impacts during construction, including:

- Seafloor disturbance may result in the localized habitat loss of demersal fish species (winter
flounder, summer flounder, and little skate) and benthic invertebrates (clams and quahogs) that prefer unstructured habitats for feeding, spawning, and nursery areas. The adult/juvenile demersal fish and benthic invertebrates in the direct path of bottom disturbing activities may experience some direct mortality or injury. During winter construction periods, demersal fish may experience higher levels of injury/mortality due to sluggish response under cold water conditions (MMS 2009a). Seafloor disturbance may affect the eggs of demersal spawners (fish spawning at the bottom) and newly settled larvae (e.g., EFH species); however, the areas of sediment disturbance are generally small compared to the total wind farm area (Jensen et al. 2006).34

The operations and maintenance phase will take place over the life of the lease. Vessels will travel from port to the lease area to conduct maintenance activities on the turbines and offshore substations. Cables (Figure 8) and foundations will also need maintenance. During operations, there may be changes in fish behavior due to electromagnetic fields generated by power cables and there could also be interruptions of migratory pathways.35 Over time, bottom-scouring and the presence of structures may cause additional habitat losses.

Decommissioning is meant to leave the site in a similar condition to how it began and would include substantial ‘construction’ activities to dismantle turbines and foundations. During this time there would be sediment impacts on benthic species and a significant change to habitat. Decommissioning does come with options, such as partial removal, which could be considered if it were shown to have less impact on habitat and species.

As noted above, the U.S. has minimal domestic case studies for actual impacts from offshore wind development. Looking to offshore wind development in other parts of the world can provide valuable information, but always must be considered in the context of differentiating geographic location, natural resources, and species. One such resource is the 2014 World Wildlife Fund report, *Environmental Impacts of Offshore Wind Power Production in the North Sea,*36 which outlines impacts to development, many of which are similar to the concerns and issues raised in the U.S. and New Jersey specifically. Electromagnetic fields (EMF) are emitted into the ocean waters from high voltage currents running through the cables connecting the grid throughout the turbines, and the cable(s) bringing electricity to the shore. The orientation of fish may be impaired by the magnetic fields surrounding electric cables and thus impact migration patterns.37 Sharks, rays, and eels are fish species that employ electrical currents for orientation and are the most sensitive.

Sedimentation will have varying impacts depending on a number of factors including intensity, spatial dispersal, particle size and life history of species. Another feature of sedimentation that constitutes a risk to fish is clogged gills leading to respiratory problems and inhibited feeding. However, this may be a particular concern for smaller species and larvae.38 There have also been findings that certain species will thrive because of turbid waters due to less predation. In general, water quality impacts are of concern and must be fully considered.

Offshore wind development poses a range of potential impacts to fish and fish habitat. Effective resource protection policies are necessary.
Habitat change findings are inconsistent. Many studies note no significant changes of fish assemblages around artificial reefs, but the WWF Report also notes several studies have pointed to potential benefits of offshore wind farms for fish. These include enhanced biological productivity and improved ecological connectivity on account of trawling exclusion and the functioning of offshore wind structures as artificial reefs.39 For example, although a monitoring program at a wind farm developed in Scotland showed a decrease in the number of fish during construction, there was an increase in fish at one year into operation. However, whether artificial reefs actually enhance productivity and thus produce more fish or simply attract existing fish is still being discussed in the literature. Definitely, for certain species, and in certain regions, artificial reefs may simply redistribute existing fish biomass.40 Current research is ongoing to determine if species benefits are greater depending on the type of foundations and/or specific scour protection designs.

In sum, it is important to consider that there is a range of potential impacts to fish and fish habitat, and the ocean ecosystem more broadly, when developing offshore wind projects necessitating clear strong resource protection policies and guidance. The next section dives into one way Mid-Atlantic states currently protect fish and fish habitat when considering uses.

Anglers have seen fish populations shift as the ocean warms and conflicting uses damage marine habitat.
How Mid-Atlantic States Protect Fish and Fish Habitat Through Their Coastal Management Authority

Many coastal states acknowledge that human-caused climate change and offshore ocean uses may impact any number of state coastal resources. So how do states protect their coastal resources, like fish and fish habitat?

Mid-Atlantic fish and fish habitat protections occur through the implementation of several federal and state law and regulatory programs. After reviewing the breadth of these programs in our initial 2017 analysis, we determined the Coastal Zone Management Act provided the best opportunities for protections for fish and fish habitat. In this section we outline how Mid-Atlantic states have specifically developed protections for fish and fish habitat through the CZMA lens.

Congress passed the CZMA in 1972 to further the effective management, beneficial use, protection and development of the Nation’s coastal resources by establishing a program to encourage coastal states to exercise their full authority over the lands and waters in their coastal zones.42 Under the CZMA, states do this by developing Coastal Management Plans, which must be approved by the National Oceanic and Atmospheric Administration. CMP development and implementation is typically carried out by each coastal state’s environmental agency or the Department of State.

The CZMA requires each CMP to provide for the protection of natural resources, including “wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat, within the coastal zone.”43 Within a CMP, states identify and adopt regulations and policies to protect these coastal resources. The statutes and regulations each state adopts under its CMP comprise the state’s enforceable policies and serve as the basis for the CZMA consistency review. This is the power granted to states with approved CMPs to identify and review specific federal actions that have the potential to impact their coastal resources and determine whether those actions are consistent with their CMP enforceable policies.44

The CZMA Consistency Provision is only as strong as the state program designed to enforce it. In addition to having comprehensive enforceable policies, the strength of a program depends on its other aspects, such as the lists of agency permits, licenses and other federal authorizations, actions and funding sources that a state must identify if it...
wants to review them; the identification of specific geographic locations outside of the coastal zone and in other states that may adversely impact state coastal resources that must be identified or state review is excluded; and any additional necessary data and information that a state can require a federal agency or applicant to submit as part of the consistency review. For example, an analysis of appeals of state consistency denial demonstrates that the Secretary will rarely override a state determination when there is a reasonably less environmentally damaging alternative available. States can therefore insulate themselves against overrides by including a thorough alternatives analysis in their list of necessary data and information required for a consistency review.

One important aspect here is the list that identifies federal activities that will have "reasonably foreseeable coastal effects" to the state's resources within the state's coastal zone and may require a "Federal agency consistency determination." States must describe the activities in "terms of the specific type of activity involved ..."[46] A state may also do the same for federal agency activities that "occur outside of the coastal zone, which the State agency believes will have reasonably foreseeable coastal effects" but it requires the state also then "describe the geographic location of such activities ..."[47] These descriptions are called Geographic Location Descriptions, or GLDs.

States can review some federal actions that are not included on its consistency list. However, instead of being notified by the federal agency or applicant that a consistency review is required, the state must spend time and resources tracking and identifying such actions and must request the opportunity for review in a timely manner. The procedural aspects and deadlines of the Consistency Provision can be problematic and can result in inadvertent waiver of a state's opportunity to review a federal action or to contest an appeal of its consistency determination. Therefore, it is better for a state to be over-inclusive in its consistency lists to ensure no significant projects slip through the cracks.

In 2001, the Federal Consistency Regulations were amended to include Federal Activities that have interstate coastal effects. The amendments give states with approved CMPs the authority to identify and review federal activities that will occur entirely in another state, but will affect the reviewing state's coastal resources. Coastal states must have approved interstate consistency lists in order to have the ability to review activities occurring outside their coastal zones.48

This section summarizes the coastal management program of each Mid-Atlantic state and the most relevant policies and rules adopted to protect fish and fish habitat. New York's coastal area boundary varies due to its unique composition of freshwater and marine coastal areas. For purposes of this report, the important coastal area boundary is the seaward boundary of the Atlantic Ocean area, which extends to the three-mile limit of the territorial sea in the Atlantic ocean.49 The Department of State (DOS) serves as the lead agency for the NY CMP and is responsible for administering the program and coordinating activities of other agencies essential to the CMP.50 The New York Department of Environmental Conservation (NYDEC) also plays a major role in the CMP as the agency responsible for protecting the State's natural resources. NYDEC reviews most activities that have the potential to impact coastal resources.51

Numerous statutes provide the authority and basis for NY's CMP and its Coastal Policies, with the Waterfront Revitalization of Coastal Areas and Inland Waterways Law being most relevant to this analysis as it provides New York with the authority to establish a coastal program, develop coastal policies, define the coastal boundaries and establish the state CZMA consistency review requirements. It also provides the mechanism for coordinating all State actions affecting the coastal area and enables the CMP to advocate for specific actions in the coastal area, such as the protection of fish and wildlife habitats.52

New York's coastal area boundary

The Coastal Zone Management Act requires each Coastal Management Plan to provide for the protection of natural resources, including "wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat, within the coastal zone."
and Harbors Act in the Byram River, discharge of dredged and fill materials in Long Island Sound and Fishers Island Sound, and activities subject to the Marine Sanctuaries Act in Long Island Sound and Fishers Sound.\textsuperscript{18}

**Coastal Policies**

The NY CMP consists of 44 policies that promote the beneficial use of coastal resources, prevent resource impairments or address activities that can substantially impact resources. For our purposes, Coastal Policy 7 is the policy most relevant to the protection of fish and fish habitat.

**Coastal Policy 7: Significant Coastal Fish and Wildlife Habitats** - This policy provides that "significant coastal fish and wildlife habitats will be protected, preserved and where practical restored so as to maintain their viability as habitats." It acknowledges that certain habitats are fundamental to assuring the survival of fish and wildlife populations, and merit special protection. Significant Coastal Fish and Wildlife Habitat (SCFWH) exhibits one or more of the following characteristics: essential to the survival of a large portion of a particular fish or wildlife population, e.g., feeding grounds, nursery areas; support populations of rare and endangered species; support fish and wildlife populations having significant commercial and/or recreational value; and/or would be difficult or impossible to replace.

Under this policy, land, water uses or development that destroys or significantly impairs the viability of an area as a habitat shall not be undertaken. A significant impairment includes any action that significantly reduces a vital resource such as food, shelter or living space, or changes environmental conditions, such as temperature, substrate or salinity, beyond the tolerance range of an organism. The Policy identifies activities that are most likely to affect SCFWH that includes activities like dredging or excavation; dredge spoil disposal; and physical alteration of shore areas through channelization or construction of shore structures, among others.\textsuperscript{19} Policy 7 also generally describes the range of physical, biological and chemical parameters that should be considered in determining whether an activity will significantly impair these important habitats.

To implement Policy 7, the NYDEC in cooperation with the NY CMP developed a methodology for identifying and rating fish and wildlife habitats in NY's coastal area.\textsuperscript{20} This resulting technical memorandum established the criteria for evaluating potential SCFWH, a methodology for calculating and scoring each potential habitat, and the administrative procedures for NYDEC to review potential SCFWH, including requirements for public hearings and other stakeholder participation.\textsuperscript{21}

To date, this process has been utilized to designate over 250 SCFWHs throughout NY. For each SCFWH site, a habitat map and a narrative has been created to provide site-specific information. The habitat narrative presents the basis for the SCFWH's designation and provides specific information regarding the fish and wildlife resources that depend on the area. General information is also provided to assist in evaluating impacts of proposed activities on characteristics of the habitat which are essential to the habitat's values. Most important, each SCFWH is rated in terms of its ecosystem rarity (one-of-a-kind to not rare), species vulnerability (endangered to not vulnerable), significant commercial or recreational uses (worldwide, U.S., regional, state, local) concentration of species population (worldwide, U.S., regional, state, local) and replaceability (irreplaceable to no active management necessary).

The narrative and numerical rankings give those seeking to engage in development activities, conservationists and other interested persons specific information about each SCFWH, its ecological importance and the level of protection they will be afforded. Activities that will impact SCFWH are subject to extra scrutiny, oftentimes during the CZMA Consistency Review process.

In 2017, New York State developed its Ocean Action Plan (NY OAP), the first state ocean plan of its kind in the Mid-Atlantic region. While the OAP is a non-regulatory guidance document, it will impact New York’s coastal policies when implemented. The NY OAP developed 61 actions for state agencies to take. One action would specifically modify and strengthen New York Coastal Policy 7. The plan calls for the New York DOS and DEC to "[s]trengthen criteria for designation of significant coastal fish and wildlife habitats (SCFWH) and designate new areas as SCFWH in state waters (0-3 nautical miles).\textsuperscript{22} While the NY OAP identifies this as a short term milestone for DOS and DEC to complete, as of fall 2020 it is still listed as “initiated.”
Coastal Policy 8: Protect Fish and Wildlife from Pollutants - This policy requires the CMP to “protect fish and wildlife resources in the coastal area from the introduction of hazardous wastes and other pollutants which bioaccumulate in the food chain or which cause significant sublethal or lethal effect on resources.” Any efforts to increase recreational resources must be done in a manner that ensures the protection of marine and freshwater fish and wildlife resources and must also consider other activities dependent on these resources. Such efforts must be in accordance with “sound resource management considerations” including biology of the species, carrying capacity, public demand and available technology. Coastal Policy 9 also sets forth guidelines for state and federal agencies to consider in their CZMA consistency reviews and determinations.

- Whether an action will impede existing or future utilization of the State’s recreational fish and wildlife resources.
- Efforts to increase access to recreational fish and wildlife resources should not lead to overutilization of that resource or cause impairment of the habitat. This includes impairment that is more subtle than actual physical damage, such as increased human presence which can deter animals from using the habitat area.
- The impacts of increasing access to resources should be determined on a case-by-case basis, consulting the SFCWH narrative developed under Coastal Policy 7 and/or conferring with a trained fish and wildlife biologist.
- Any public or private sector initiatives to supplement existing stocks (e.g., stocking streams with fish reared in a hatchery) or to develop new resources (e.g., creating private fee-fishing facilities) must be done in accordance with NY law.

New Jersey Fish and Fish Habitat CMP Protections

New Jersey’s coastal area is managed by the NJ Department of Environmental Protection under the authority of Coastal Area Facility Review Act (CAFRA), the Waterfront Development Law, the Wetlands Act of 1970 and the Tidelands Act as well as the Coastal Rules designed to implement these statutes. For purposes of this report it is important to know that New Jersey’s seaward coastal boundary is the “limit of the New Jersey territorial jurisdiction located three nautical miles from the mean high water line.” NJ’s CMP consists of several programs overseen by NJDEP, that share responsibility for the protection and enhancement of New Jersey’s coastal resources.

New Jersey’s program has identified a set of federal activities subject to the state’s consistency review: Included in this list are the interstate activities subject to New Jersey’s consistency review, which are Army Corps of Engineers activities occurring in Delaware around construction of structures pursuant to the Rivers and Harbors Act in Delaware Bay, minus the mining of sand for beach nourishment projects and the discharge of dredged and fill materials in Delaware Bay.

Coastal Policies
State Coastal Area Facility Review Act (CAFRA) - Adopted in 1973, CAFRA requires that development in the coastal zone occurs: “... within the framework of a comprehensive environmental design strategy which preserves the most ecologically sensitive and fragile areas from...”
Coastal protections in New Jersey include critical habitat for migratory species such as the federally listed rufus red knot, shown here being tagged by an official of the U.S. Fish and Wildlife Service (David Eisenhauer/USFWS/public domain).

inappropriate development and provides adequate environmental safeguards for the construction of any developments in the coastal area.\(^7\)

The statute divides the CAFRA area into zones and regulates different types of development in each zone. Much residential, commercial and industrial development is regulated under CAFRA, including construction, relocation and enlargement of buildings or structures, and all related work, such as excavation, grading, shore protection structures and site preparation.\(^8\)

The Coastal Rules - The Coastal Rules are the substantive regulations that govern the use, protection and development of New Jersey's coastal resources. They provide the standards by which the DEP's Land Use Regulation Program reviews permit applications as well as requests for Clean Water Act Water Quality Certifications and CZMA Consistency Determinations.

Central to the Coastal Rules is their identification of “Special Areas,” which are areas that are “so naturally valuable, important for human use, hazardous, sensitive to impact, or particular in their planning requirements” that they merit focused attention and special management rules.\(^9\)

In these areas, development is for the most part either “prohibited,” meaning that a proposed use of coastal resources is unacceptable and the NJDEP will use its legal authority to reject or deny the proposal, or “discouraged,” meaning that a proposed use in such areas is likely to be rejected as the NJDEP has determined that uses of these coastal resources should be deterred.\(^10\) However, there are numerous exceptions to these provisions that are enumerated in the rules.

Coastal Rules pertaining to the protection of fish and fish habitat include\(^11\) the following Special Area Rules:

Prime Fishing Areas Rule - PFAs include tidal water areas and water’s edge areas which have a demonstrable history of supporting “a significant local intensity of recreational or commercial fishing activity,” and include coastal jetties, groins, public fishing piers or docks and artificial reefs.\(^2\) These areas can be used for recreational and commercial fishing and shellfishing, scuba diving, and other water related activities. Prohibited uses of these areas include “sand or gravel submarine mining which would alter existing bathymetry to a significant degree so as to reduce the high fishery productivity of these areas.”\(^13\)

Finfish Migratory Pathways Rule - Finfish migratory pathways are rivers, streams, creeks, bays and inlets that serve as passageways for diadromous fish to or from seasonal spawning areas.\(^14\) Development such as dams, dikes, spillways, channels, tide gates and intake pipes which creates a physical barrier to the movement of fish along the pathway is prohibited unless acceptable mitigating measures are used, such as fish ladders, erosion control and oxygenation.\(^15\) Development which would lower water quality to the extent that it interferes with the movement of fish along migratory pathways or violates state water quality standards is prohibited.\(^16\)

The Critical Wildlife Habitats Rule - The Critical Wildlife Habitats Rule applies to specific areas known to serve an essential role in maintaining wildlife, particularly through the protection of essential activities such as wintering, breeding, and migrating. Formal designations and maps of critical wildlife habitats are currently available only for colonial waterbird habitat.\(^17\) However, additional sites are considered on a case-by-case basis by the Division of Fish and Wildlife.

The Endangered and Threatened Wildlife or Plant Species Habitats Rule - This rule states that development of endangered or threatened wildlife or plant species habitat is prohibited unless it can be demonstrated that the habitat would not, directly or through secondary impacts on the site or the surrounding area, be adversely affected.\(^18\) Such a demonstration must be made through an Endangered or Threatened Wildlife or Plant Species Habitat Impact Assessment, a formal assessment for which the criteria, standards and substance are mandated by the Coastal Rules.

Submerged Vegetation Habitat Rule - Submerged vegetation habitats are water areas supporting, or document as previously supporting, rooted submerged vascular plants such as widgeon grass, sago pondweed, and eelgrass and less prevalent species such as water weed.\(^19\) Maps detailing the distribution of applicable species are available from the NJDEP in the New Jersey Submerged Aquatic Vegetation Distribution Atlas, Final Report, 1980 and on Eelgrass Inventory Maps prepared by the Division of Fish and Wildlife. Subject to a list of at least seven exceptions, development in submerged vegetation habitat is prohibited.\(^20\) However, if an applicant can demonstrate through clear and convincing evidence that part of the mapped habitat lacks the physical characteristics to support the documented submerged vegetation species, the site will be excluded from the definition of such habitat and the Rule will not apply.
Delaware’s program has identified a set of federal activities subject to the state’s consistency review. Included in this list are the interstate activities subject to Delaware’s consistency review, which are Army Corps of Engineers activities occurring in New Jersey and Pennsylvania around dredging, filling, mining, and excavation in excess of 50,000 cubic yards in Delaware Bay, minus the mining of sand for beach nourishment projects and the subsurface discharge of dredged and fill materials or redistribution of sediments in excess of 50,000 cubic yards into Delaware River or Bay. It also includes activities in New Jersey and Maryland regarding alternative energy development (siting, placement, construction and/or decommissioning of wind, wave, and tidal), and the introduction of non-native shellfish in New Jersey occurring within Delaware River and Bay and then in Maryland and Virginia occurring within Chesapeake Bay.

Coastal Policies

Development Prohibited in the Coastal Strip – The coastal strip was initially defined in the Delaware State Coastal Zone Act of 1971, the primary authority for regulating heavy industry, manufacturing and bulk transfer activities occurring within the State. Delaware’s Coastal Management Program is a networked program currently overseen by the state’s Department of Natural Resources and Environmental Control (DNREC) and resides in the Division of Climate, Coastal, and Energy. Delaware’s program has identified a set of federal activities subject to the state’s consistency review. Included in this list are the interstate activities subject to Delaware’s consistency review, which are Army Corps of Engineers activities occurring in New Jersey and Pennsylvania around dredging, filling, mining, and excavation in excess of 50,000 cubic yards in Delaware Bay, minus the mining of sand for beach nourishment projects and the subsurface discharge of dredged and fill materials or redistribution of sediments in excess of 50,000 cubic yards into Delaware River or Bay. It also includes activities in New Jersey and Maryland regarding alternative energy development (siting, placement, construction and/or decommissioning of wind, wave, and tidal), and the introduction of non-native shellfish in New Jersey occurring within Delaware River and Bay and then in Maryland and Virginia occurring within Chesapeake Bay. Coastal Zone Permits - A Coastal Zone Permit is required for changes to existing non-conforming uses already in the Coastal Zone and for new manufacturing uses proposed within the Coastal Zone. Each application for a Coastal Zone Permit must include an environmental impact statement that presents an assessment of the project’s likely impact on a variety of factors, including wetlands, flora and fauna; surface and ground water resources, and state or federal threatened or endangered species. In addition, the DNREC must consider each project’s potential impact under the Delaware CMP Policies. The CMP Policies that protect fish and fish habitat are discussed below.

Wetlands Policy - Activities that may impact wetlands require state approval, for which the and the following factors will be considered: environmental impact; the number and type of supporting facilities and their impact; effects on neighboring land uses; any state and local comprehensive plans; the economic impact on jobs, taxes and land area; the aesthetic impact; alternative methods of construction; and cumulative impacts. Channel dredging through wetlands of certain depths or that interfere with tide flows are strictly prohibited.

Coastal Waters Policy – Coastal waters must be protected and conserved to assure their continued availability for public recreation and for the conservation of aquatic life and wildlife.
Part Two

Living Resources Policy – Under this Policy, no activity shall have an adverse environmental effect on living resources, and that analysis must include consideration of the effect of site preparation and the activity on wetlands values, including the effects on:

- Tidal ebb and flow;
- Production value to adjacent estuaries and coastal waters which serve as breeding areas for fish and shellfish;
- Effect on estuarine waters; and
- Habitats value for resident species, including invertebrates and fish; for migratory species including birds, finfish and shrimp; rearing, nesting and breeding grounds; plants or animals known to be rare generally or unique to a particular location; plants or animals near the limits of their territorial range; and unique geological or wetlands features.

**Fish and Wildlife Policy** – This Policy requires all forms of protected wildlife to be managed and protected from negative impacts. In addition, state shellfish resources must be protected from further impairment and when possible, improved.

**Nongame and Endangered Species** – This policy declares that nongame and endangered species are in need of active, protective management to preserve and enhance them and that this will be accomplished through the protection of the habitat, natural areas, and areas of unusual scientific significance important to their survival. Endangered marine species in Delaware are the Atlantic sturgeon and Shortnose sturgeon, the same as those federally designated. “Areas of unusual scientific significance” are not defined nor are areas identified in the Delaware regulations or CMP program documents.

**Additional Advisory Policy for Fish and Wildlife** – Under this policy, all actions which may interfere with or otherwise adversely affect fish and wildlife in Delaware cannot be approved until there has been a “careful consultation” with the DNREC’s Division of Fish and Wildlife and after alternatives less damaging to fish and wildlife have been explored. Such a consultation would include any potential impacts to the areas designated by the Division of Fish and Wildlife as Habitat of Conservation Concern (HCC). HCC are rare habitats, habitats that have special significance in Delaware, are particularly sensitive to disturbance, or have a high diversity of rare plants. Because of these factors, they are known or expected to harbor species that are in the greatest need of conservation. Estuarine HCC in Delaware cannot be approved until there has been a “careful consultation” with the DNREC’s Division of Fish and Wildlife. Estuarine HCC in Delaware are the Atlantic sturgeon, scup, black sea bass, red drum and many others. Estuarine Submerged Aquatic Vegetation – Critical nursery cover for numerous juvenile and adult fish, juvenile sea turtles and estuarine waterfowl.

- Mussel Reef – Tautog, greater and lesser scup, surf scoter, and long-tailed duck.
- Hard Clam Beds – Atlantic sturgeon, scup, black sea bass, Atlantic croaker, red drum, and knobbed whelk.

**Fishing tournament tote board at Fisherman’s Wharf in Lewes, Delaware (Kyle Wagaman/CC BY-NC-SA 2.0).**
Maryland’s coastal zone extends from three nautical miles to the inland boundary of the 16 counties bordering the Atlantic Ocean, the Chesapeake Bay, the Potomac River to the municipal limits of Washington D.C. This zone encompasses two-thirds of the State’s land area and is home to almost 70% of Maryland’s residents.113 The seaward boundary of Maryland’s coastal zone is three nautical miles. Maryland’s CMP is a networked program implemented by the Department of Natural Resources (MD DNR) Chesapeake & Coastal Service (CCS), a partnership among local, regional and state agencies that also collaborates with private organizations, including local land trusts and economic development groups. No one agency or department is responsible for the entire coast; instead, all CCS partners help ensure its proper management.115 However, MD DNR is considered the lead agency for Maryland’s CMP.116

Maryland’s program has identified a set of federal activities subject to the state’s consistency review.118 Maryland has not designated any interstate activities subject to its consistency review.

Coastal Policies

Maryland’s Coastal Policies are established in the Maryland Code (statutes) and the Code of Maryland Regulations (implementing regulations). They are not incorporated in one specific section of the Code or Regulations, but are located throughout in accordance with their specific subject matter or the department or division that implements them. In 2011, to make its Coastal Policies known and available to interested parties, including federal agencies engaged in consistency reviews, Maryland compiled all of its CMP enforceable policies in one document, which was reviewed and approved by NOAA.119

The following are the selected portions of the Maryland Coastal Policies most related to the protection of fish and fish habitat and are enforced through the permit and license application review processes associated with activities proposed for the Coastal Zone.

Tidal Wetland Policies - Any action which alters the natural character of tidal wetlands, tidal marshes and tidal waters cannot commence without a permit. The permit application must include a description of the impacts upon:

- Habitat for finfish, crustaceans, mollusks and wildlife of significant economic or ecologic value;
- Potential habitat areas such as spawning and nursery grounds for anadromous and semi-anadromous fisheries species and shallow water areas suitable to support populations of submerged aquatic vegetation; and
- Natural water flow, water temperature, water quality and natural tidal circulation.

Living Aquatic Resources Policies – Anyone proposing to engage in an activity that may impact living aquatic resources must comply with all of the following:

- Unless authorized by an Incidental Take Permit, no one may take a state listed endangered or threatened species of fish or wildlife.
- Fisheries shall be sustainably harvested.
- Any land or water resource acquired by the state to protect, propagate, or manage fish shall not be damaged.
- No activity will be permitted that impedes or prevents the free passage of any finfish, migratory or resident, up or down stream.
Projects that may adversely affect anadromous fish spawning areas are prohibited in non-tidal waters from March 15 through June 15.

Projects in or adjacent to non-tidal waters shall not adversely affect aquatic or terrestrial habitat unless there is no reasonable alternative and mitigation is provided.

In addition to the policies related to the protection of specific natural resources, Maryland’s CMP also incorporates policies for specific activities or “coastal uses” in the Coastal Zone. Those inclusive of protections for fish and fish habitat include: electrical generation and transmission, tidal shore erosion control, oil and natural gas facilities, dredging and disposal of dredged materials, and navigation.

Virginia’s coastal zone covers 29% of the state’s total land area, and incorporates all of Virginia’s Atlantic Coast watershed; parts of the Chesapeake Bay and Albemarle/Pamlico Sound watersheds; 5,000 miles of shoreline; and four tidal rivers reaching as far as 100 miles inland (Potomac, Rappahannock, York and James Rivers). The CMP is a “networked” program, meaning it utilizes existing programs, agencies, regulations and laws to manage its coastal resources pursuant to a gubernatorial executive order that binds all of the agencies to the CMP policies.

In 2018, the Governor continued the Virginia Coastal Management Program in perpetuity, to halt the prior practice of reauthorizing the program every four years at the start of a new governor’s term. A Coastal Policy Team facilitates the coordination and cooperation among the agencies, with members of the Coastal Policy Team representing all of Virginia’s networked agencies and coastal management partners.

In 2020, NOAA approved a program change to Virginia’s CZM program that added new enforceable policies and converted previously existing enforceable policies into narrative statements. These statements took the underlying statutory and regulatory requirements of the program and turned them into summarized “plain language” statements.

Virginia’s program has identified a set of federal activities subject to the state’s consistency review. Virginia has not designated any interstate activities subject to its consistency review.

Coastal Policies
Each state agency engaged in the management of coastal resources must ensure its programs and activities promote the CMP’s Coastal Policy Goals, several of which pertain to coastal resource protection, including fish and fish habitat:

- To protect and restore coastal resources, habitats and species including, but not limited to, wetlands, subaqueous lands and vegetation, beaches, dunes, barrier islands, underwater or maritime cultural resources, riparian forested buffers and endangered and threatened species. (Coastal Resource Protection Goal 1).
- To restore and maintain the quality of all coastal waters for human and ecosystem health through the protection from adverse effects of excess nutrients, toxics, pathogens and sedimentation. (Coastal Resource Protection Goal 2).
- To reduce or prevent losses of coastal habitat, life and property caused by shoreline erosion, storms, sea level rise and other coastal hazards in a manner that balances environmental and economic considerations. (Coastal Resource Protection Goal 3).

Virginia Institute of Marine Science Ph.D. candidate and Virginia Sea Grant Fellow Cassidy Peterson conducts research on a long-line fishing boat about 15 miles out of Chesapeake Bay (Aileen Devlin/Virginia Sea Grant/CC BY-ND 2.0).

A young angler shows off his catch during the Virginia Charter Boat Association’s Youth Fishing Adventure (Janet Krenn/Virginia Sea Grant/CC BY-ND 2.0).
**Tidal Wetlands Management** - The tidal wetlands program is intended to preserve the tidal wetlands, prevent their despoliation and destruction, and accommodate necessary economic development in a manner consistent with wetlands preservation. Activities that may impact wetlands are controlled through a permit system that is administered by the VMRC, or, if a local city, town or county wants oversight of wetlands permits in its own jurisdiction, it can establish a wetlands board. The board must formally adopt the model wetlands zoning ordinance developed by the VMRC and set forth in the Virginia Code, which is the only wetlands zoning ordinance under which any wetlands board is authorized to operate. The guidelines for evaluating permit applications were developed by the VMRC’s Habitat Management Division in collaboration with the Department of Wetlands Ecology, Virginia Institute of Marine Science of the College of William and Mary. The guidelines are extensive and detailed and, among other things, identify the varied, unique and important communities of wetlands found throughout Virginia, the criteria for classifying wetlands into 5 categories based upon their estimated environmental value, and the criteria for evaluating the impacts of alterations of wetlands.

**Fisheries Management** - Marine commercial and recreational fishing is overseen by the VMRC. Limits upon and protections to fisheries are accomplished through regulations governing recreational fishing licenses, commercial fishing and mandatory harvest reporting requirements, gear use and restrictions, crabbing and harvesting of clams, and the establishment of restricted/protected areas. The regulations also include provisions to ensure compliance with existing FMPs. The CMP’s marine fisheries policy works to conserve and promote the Commonwealth’s seafood and marine resources and maximize food protection and recreational opportunities. The policy does call to ensure fisheries activities do not “encroach upon the natural oyster beds, rocks, and shoals of the Commonwealth.”

**Submerged Lands Management** - This program is also administered by the VMRC and establishes conditions for granting or denying permits for the use of state-owned bottomlands. In evaluating permits, consideration is given to the potential effects on marine and fisheries resources, wetlands, submerged aquatic vegetation and water quality standards established by the Virginia Department of Environmental Quality pursuant to the Clean Water Act.
Advisory Policies for Geographic Areas of Particular Concern – The Virginia CMP established advisory policies for geographic areas of particular concern, which are described as “recommendations” that should be considered by federal agencies and others proposing projects. Among these areas of particular concern are “coastal natural resource areas” which are “vital to estuarine and marine ecosystems” and receive “special attention” from the CMP because of their conservation, recreational, ecological, and aesthetic values. Although a reference to geographic areas of particular concern cannot be found in any of the other CMP resources or reports, and it is not known what “special attention” entails, they are broadly stated to include wetlands, aquatic spawning, nursery and feeding grounds, significant wildlife and habitat areas and even sand and gravel resources.

Discussion of Mid-Atlantic State CMP Protections

Overall, it is clear that Mid-Atlantic states use a variety of enforceable policies in their federally-approved coastal management plans to protect fish and fish habitat. Some policies focus on types of ecosystems, some on coastal resource uses, and some focus on both. Each coastal policy discussed above is meant to serve in the interest of protecting important state coastal resources.

One rule, the New Jersey PFAs Rule, stands out. The PFAs Rule is the only Mid-Atlantic state protective mechanism geared toward fish, and secondarily fish habitat, that appears to have produced both a specific standard requiring an analysis to determine the rule’s applicability as well as a baseline map with identified inshore and offshore areas that inherently meet the rule’s standards. Not only that but one that extends out into the outer continental shelf along every Mid-Atlantic state except Virginia, though clustered within the New York Bight.

In comparing the Mid-Atlantic state coastal policies that have a mapped layer mechanism, nothing comes close to the expansive offshore layer of New Jersey’s Prime Fishing Areas. In fact, only New York and Delaware have something that has the potential to work similarly, but would still require some change. First is New York’s Coastal Policy 7, the SCFWH. As detailed above, New York has developed extensive methodology for identifying SCFWH, with over 250 mapped SCFWH. However, these are all very closely tied to the New York shoreline or interior waters, which is dissimilar to the PFA Rule. New York DEC and DOS should swiftly finish updating its SCFWH methodology to reflect threats to marine fish and habitat and move to identify marine SCFWH. Once completed, these SCFWH would become a much more comparable layer to PFAs given its detailed guidance.

Second is Delaware’s offshore geographic location descriptions, or GLDs. Delaware developed GLDs in 2011 for dredging and dredged material disposal, offshore alternative energy development, and the introduction of non-native shellfish.

While at first glance this appears potentially promising as a geographic layer that could utilize Delaware’s coastal policies to protect the state’s coastal resources from offshore sand and gravel mining and dredging, the GLD for dredging and dredged material disposal is for interstate activities in New Jersey and Pennsylvania. It applies narrowly within the Delaware River and Bay and explicitly excludes beach nourishment projects from consideration. The only GLD with any reach into federal ocean waters, similar to where many PFAs are found and identified, only applies to offshore alternative energy development. The offshore alternative energy GLD spans the state waters of Delaware, Maryland and the tip of New Jersey (Hereford Inlet, NJ) to Cape May, NJ) and then straight out into federal waters to the edge of the contiguous zone, 24 nautical miles. Delaware should also develop a GLD for sand mining in federal waters in order to fully protect state fish and fish habitat resources.

In sum, the PFAs Rule is unique to other coastal policies and deserves further analysis and understanding, at least in part to explore its utility as an approach applicable to fish and habitat protection throughout the region. Part III discusses the history of the rule, its purpose, and its application in coastal management decision-making. It also discusses some of the practical impacts of PFAs as seen through the lens of two case studies on New Jersey sand mining and New York Bight offshore wind. Finally, we detail efforts to expand the conversation beyond the fact that anglers find PFAs important to understand why this knowledge base is important for fish and fish habitat.
The New Jersey Prime Fishing Areas Rule in Policy, Planning, and Practice

New Jersey's coastal zone runs the 126 miles of the Atlantic ocean front from Sandy Hook to Cape May. It also includes the winding tidal coastline, for a total of 1,792 miles, which ranges in width from 100 feet to 16.5 miles. New Jersey's extensive coastal zone is densely-packed with a coastal population of approximately 7,575,546 people extending across eight counties and 126 municipalities.144

As discussed in Part II, New Jersey's Coastal Rules are the substantive regulations that govern the use, protection and development of New Jersey's coastal resources, like fish and fish habitat. They provide the standards by which the NJDEP's Land Use Regulation Program reviews permit applications and CZMA Consistency Determinations, among many other things. Key to the Coastal Rules is their identification of “Special Areas,” which are areas that are “so naturally valuable, important for human use, hazardous, sensitive to impact, or particular in their planning requirements” that they “merit focused attention and special management rules.”145

In these areas, development is for the most part either “prohibited,” meaning that a proposed use of coastal resources is unacceptable and the NJDEP will use its legal authority to reject or deny the proposal, or “discouraged,” meaning that a proposed use in such areas is likely to be rejected as the NJDEP has determined that uses of these coastal resources should be deterred.146 The New Jersey PFAs Rule is one such rule.

New Jersey Prime Fishing Area Rule

The PFAs Rule is one of New Jersey’s “special areas” pertaining to the protection of fisheries, fish, and fish habitat. PFAs include “tidal water areas and water’s edge areas which have a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity,”147 and include:

• all coastal jetties, groins, public fishing piers or docks and artificial reefs;
• features such as rock outcroppings, sand ridges or lumps, rough bottoms;
• aggregates such as cobblestones, coral, shell and tubeworms;
• slough areas and offshore canyons;
• areas identified in “New Jersey’s Recreational and Commercial Fishing Grounds of Raritan
Bay, Sandy Hook Bay and Delaware Bay and The Shellfish Resources of Raritan Bay and Sandy Hook Bay” Figley and McCoy (1988); and • those areas identified on the map titled, New Jersey’s Specific Sport Ocean Fishing Grounds.148 This means there are both identified, mapped PFAs found on a (now) digitized map and unidentified PFAs that are consistent with the rule’s definition for a PFA but are not mapped. The rationale for prime fishing areas is to protect these areas because they “act as congregation areas for many species of finfish, shellfish, and diverse invertebrate species that are essential to marine ecosystem functioning” and are heavily used by recreational and commercial fishermen.149

The Rule sets out two standards relevant to the use of prime fishing areas: permissible and prohibited uses. Permitted uses include "recreational and commercial finfishing and shellfishing, scuba diving and other water related recreational activities.”150 Prohibited uses include “sand or gravel submarine mining which would alter existing bathymetry to a significant degree so as to reduce the high fishery productivity of these areas.”151

There are no exceptions to this prohibition in the rule. As such, if a sand mining project would alter the bathymetry of a PFA to the extent that the fishery productivity of these areas is reduced, the PFAs Rule prohibits the use of these areas and New Jersey should issue a negative Consistency Determination to exclude these areas from the project. In 2007, the NJDEP proposed amendments to the PFA Rule that would have added three exceptions to the rule as well as a mitigation opportunity; however, these proposed provisions were not adopted.152

NJDEP does not have guidance defining the threshold for mining that would “alter existing bathymetry to a significant degree” such that it reduces the PFAs high productivity. It is unclear what significant degree means or how the reduction in productivity is measured, or over what length of time. This leaves such determinations to the best professional judgement of NJDEP staff reviewing activities for consistency or to federal agency staff undertaking a consistency determination for a proposed use within PFAs. The PFAs Rule creates a presumption that uses of these areas for anything other than fisheries or recreational activities are generally prohibited unless expressly stated otherwise, other uses of PFAs should be viewed through that lens by reviewing agencies.

In addition to the standards created in the rule itself, PFAs are also subject to the state’s general water areas rules.153 Of the many general water area rules, PFAs are specifically called out in the rules pertaining to the conditions for siting submarine cables and artificial reefs. For a submarine cable, or a portion thereof, to be sited within a PFA two conditions must be met: (1) “no prudent and feasible alternative route exists” outside of the PFA, and (2) the cable must “follow the route with the least disturbance” to the PFA.154 The general water areas rule notes that in many cases an area will be identified as both a special area and a general area, and thus both rules will apply to that area.155 However, should the rules conflict, the “more specific special area rules shall apply.”156

PFAs are also recognized in several of the state’s Resource Rules, which are the standards by which the state analyzes effects a proposed development/activity may have on various resources of the “built and natural environment of the coastal zone.”157 PFAs show up in the marine fish and fisheries and open water disposal standards, though most applicable here is the marine fish and fisheries standard. This standard explicitly discourages any activity that would “adversely impact any New Jersey based marine fisheries,” but allows sand and gravel mining for beach replenishment even if it would impact marine fish and fisheries if it meets a set of requirements. One of those requirements is the recitation of the PFAs Rule’s prohibition – that “any alteration of existing bathymetry within PFAs … does not reduce the high fishery productivity of these areas.”158

History of the PFAs Rule

The PFAs Rule is first found in New Jersey’s original Coastal Management Plan, which was approved by NOAA in 1978.159 As part of the plan’s development, the state of New Jersey adopted the state’s substantive coastal policies detailed in the CMP, inclusive of the PFAs Rule, as administrative rules (N.J.A.C. 7:7E-1.1 et seq., effective September 28, 1978).160 The PFAs Rule was subsequently amended in 1990, 2003 (to add additional and updated sources of publications, charts and maps identifying PFAs), 2008, and 2018 (technical corrections).
In the 2003 update of the map, NJDEP conducted direct interviews with recreational fishing boat captains. NJDEP took the already identified PFAs in “the various publications referenced in the rule and commercially prepared sport fishing charts (Homeport Charts and Charter Boat Charts)” and transferred them onto two sets of NOAA nautical charts, which served as the working or base map for the update. From there, NJDEP selected and interviewed 28 party boat captains, 47 charter boat captains and 22 private boat captains from each fishing port (inlet) along the Atlantic Coast of New Jersey because of their consistency in fishing ocean waters daily and use of diverse fishing methods to catch a variety of species. The fishermen reviewed both the accuracy of the already delineated PFAs on the base map and then “modified … [it] … by drawing their changes on the map.”

NJDEP stated in its description of the 2008 amendments that this 2003 review generally led to the enlargement of PFAs reviewed. However, the NJDEP was clear to state that “while the maps show an increase in the size of prime fishing areas, these areas were already included in this special area by definition since the areas ‘have a demonstrable history of supporting a significant local quantity of recreational or commercial fishing activity.’” The captains also drew new PFAs on the base maps.

The NJDEP then digitized the revised base maps into the New Jersey Specific Sport Ocean Fishing Grounds Coverage. NJDEP stated at the time of the change that the “updated mapping of these areas better reflects visually the ocean sport fishing areas included in this special area.” These areas identified on this digital map are prime fishing areas under the PFAs Rule.

In addition to the map changes, the 2008 amendments also modified the rule’s language. Prior to 2008, the rule described PFAs as follows: Prime fishing areas include tidal water areas and water’s edge areas which have a demonstrable history of supporting a significant local quantity of recreational or commercial fishing activity. The area includes all coastal jetties and public fishing piers or docks and artificial reefs.

Prime fishing areas also include all red line delineated features within the coastal waters illustrated in: B.L. Freeman and L.A. Walford (1974) Angler’s Guide to the United States Atlantic Coast Fish; fishing Grounds and Fishing Facilities, Section III and IV or as indicated on New Jersey’s Specific Sport and Commercial Fishing Grounds Chart (page 14) contained in “New Jersey’s Recreational and Commercial Ocean Fishing Grounds.” Long and Figley (1984). In 2008, the amendments add the following statement after “artificial reefs”:

Prime fishing areas also include features such as rock outcroppings, sand ridges or lumps, rough bottoms, aggregates such as cobblestones, coral, shell and tube worms, slough areas and offshore canyons.

The 2008 amendments also removed the old list of reports identifying PFAs noting that “prime recreational fishing grounds identified in the various publications referenced in the rule and commercially prepared sport fishing charts were transferred onto two sets of NOAA nautical charts, which serve as the working or base map” which were then digitized into the New Jersey Specific Sport Fishing Grounds Coverage and incorporated into the NJDEP’s GIS. Therefore, the previous reports and charts, including the 1984 Long and Figley publication, were, as of the 2008 amendments, incorporated into the new NJDEP digitized Sport Fishing Grounds digitized maps. This is a reference to the 2003 map updates through interviews, as described above. In 2018, the NJ Bureau of Marine Fisheries again updated the New Jersey Prime Fishing Grounds to include all current 17 artificial reef sites, and updated the Homeport Charts.

In addition to looking at the development of the PFAs Rule, it is important to understand how coastal managers in New Jersey and within federal agencies have interpreted and applied the Rule when permitting or planning to permit activities that implicate the PFAs Rule.

Key to New Jersey’s Coastal Rules is the identification of Special Areas “so naturally valuable, important for human use, hazardous, sensitive to impact, or particular in their planning requirements” that they “merit focused attention and special management rules.”
The Prime Fishing Areas Rule in Practice: Coastal Consistency

The statutes and regulations each state adopts under its CMP comprise the enforceable policies that serve as the basis for the CZMA consistency review. They are the policies with which the federal actions must be deemed consistent before they can proceed. Therefore, the strength of a state’s consistency review is only as strong as its enforceable policies. However, it is also important to understand how decision-makers have interpreted the enforceable policies in consistency reviews. In this section, we detail the findings of a desktop review of publicly available documents pertaining to the PFAs Rule in connection with New Jersey’s Coastal Zone Management Program’s consistency determinations.

This review yields three general categories of how agencies have made decisions around the PFAs Rule: (1) The PFAs Rule is found to be inapplicable because no PFAs are found to exist in the project area; (2) The PFAs Rule is applicable and the project area/proposed action is consistent with the rule; and (3) the PFAs Rule is applicable to the project area/proposed activity but the proposed activity is inconsistent with the rule. We make several observations about the operation of the PFAs Rule based on a review of the available examples.

First, PFAs are generally viewed as static, fixed areas and proposed activities are considered as either being “in” or “out” of an area, even though the PFAs Rule, on its face, is broader than fixed areas. Second, in some cases, the PFAs Rule is considered and the proposed activities are deemed consistent if they are among the enumerated permitted uses.

Third, in contrast to the second observation, in some cases the PFAs Rule is considered and the proposed activities are deemed consistent if they are not expressly prohibited. Fourth, in the most significant examples (multi-million-dollar Federal projects spanning 50 years or more), expressly prohibited activities have been allowed to proceed as conditionally approved and thus consistent, with no clear rationale provided as to how those conditions satisfy the intent of the PFAs Rule and its prohibition.

Finally, it appears the PFAs Rule leads some reviewers to confine prime fishing grounds (updated as recently as 2018 by the NJ Bureau of Marine Fisheries) with “prime fishing areas” under the NJAC. PFAs include as a subset the identified grounds, but extend more broadly to tidal water areas and water’s edge areas which have a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity, as described in the previous section. These areas include all coastal jetties, groins, public fishing piers or docks, and artificial reefs. As noted in the rule, PFAs also include features such as rock outcroppings, sand ridges or lumps, rough bottoms, aggregates such as cobbles, coral, shell, and tube worms, slough areas, and offshore canyons. In this way, where the specifically delineated areas are treated as the sole definitive locations of “prime fishing areas” the broader scope of the PFAs Rule is not applied, which is contrary to NJDEP’s own understanding in the 2008 Rule amendments that unidentified, unmapped PFAs exist.

The manner in which the PFAs Rule has been applied suggests the NJDEP and applicants have sometimes taken an inappropriately narrow view of the rule’s protections. The plain text of the PFAs Rule requires a factual, case by case analysis of an area’s historical capacity to support fishing activity.

Category A: The PFAs Rule is not applicable to a proposed activity in a coastal area.

In the following examples, the analysis determined that the PFAs Rule did not apply because PFAs did not exist in the project area. Generally, when a coastal project analysis determines that PFAs are not present in the project area(s), the PFAs Rule is not applicable. However, these analyses have also shown that the ACoE’s analysis of whether PFAs are present may be an inappropriately narrow interpretation of the PFAs Rule, i.e. not recognizing PFAs that are unmapped.

In 2019, the U.S. Army Corps of Engineers (ACoE) completed a federal consistency assessment as part of a Coastal Storm Risk Management Feasibility Study for the Passaic River Tidal Protection Areas. In the assessment the ACoE cited all Special Area Rules that must be considered when evaluating designated coastal zone projects for
consistency with New Jersey's Coastal Zone Management Rules. The Passaic River Tidal Protection study area is in a designated coastal area, but because the ACoE stated it did not include any PFAs, the ACoE stated that the PFAs Rule did not apply.

Similar to the approach taken by the ACoE in the Passaic River example, the ACoE cited all Special Area Rules that must be considered when evaluating designated coastal zone projects for consistency with New Jersey's Coastal Zone Management Rules. The project area is in a designated coastal area, but because the ACoE stated it did not include any PFAs, the ACoE stated that the PFAs Rule did not apply. In this instance, unlike the Passaic River Consistency Determination, the ACoE acknowledged only that the PFAs Rule prohibits sand and gravel mining, and stated neither activity is part of the project. Like the Passaic River conclusion, there is no apparent consideration of the broader implications of the PFAs Rule.

In 2020, the ACoE developed a Coastal Storm Risk Management Feasibility Study and Statement of Compliance with Coastal Zone Management Rules for a proposed coastal storm risk management project for Rahway River Basin involved the implementation of nonstructural measures and construction of a levee/floodwall located within the designated coastal zone of New Jersey. In it, the ACoE concluded the PFAs Rule was inapplicable because the proposed project is not located in a prime fishing area and it does not involve any prohibited sand or gravel mining. In this, the ACoE revealed its current (2020) interpretation of the PFAs Rule: that the PFAs Rules is a policy prohibiting sand or gravel submarine mining only if it would (a) alter existing bathymetry and (b) in a manner that would significantly reduce high fish productivity in PFAs. The ACoE also appears to finally acknowledge that PFAs are not limited to mapped fishing grounds, unlike in previous proposed activities.

A final example is the ACoE's Shrewsbury River Basin Project, which is a clear example of a coastal zone activity that does not implicate PFAs and the PFAs Rule. The project involves a proposed plan to elevate 37 structures in the municipality to prevent future flood damage. Here the ACoE states unequivocally that the policy prohibits sand or gravel submarine mining in prime fishing areas. Unlike the Rahway River Basin articulation of the policy, the ACoE appears to acknowledge the nature of the prohibition, as well as the scope of the rule.

Category B: The PFAs Rule is applicable to a proposed activity in a coastal area and the proposed activity is consistent with the rule.

Here, the majority of cases fall into a broad category of factual scenarios where a project area contains PFAs and the proposed activity is found to be consistent with the PFAs Rule.

The 1990 Bayshore Trail and Bikeway project to construct a pedestrian trail and bikeway parallel to Raritan and Sandy Hook Bays commissioned a Plan for its Location and Development. The project was to extend the new dock to access deeper water without dredging to allow recreational vessels to dock. The report authors indicate in 1981 that they performed a consistency analysis, considered Special Area Rules, and followed CLAM (Coastal Location Acceptability Method). Included among the policies cited is the PFAs Rule (NJAC 7:7E:E.4).

The report states that after the actions are taken, the site “will become a prime fishing area.” This statement reveals a misconception that the site is not already a PFA, but could be restored. Another interpretation is that the authors understand that the improvements and proposed actions were consistent with the PFAs Rule, because the project would promote permissible uses in an area that satisfies several of the PFAs Rule requirements (tidal water areas; water’s edge areas which have a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity, which include public fishing piers or docks).
In 1990, Commercial Township developed a Study regarding Lower Maurice Waterfront in its bid to revitalize Commercial Township, which considered a number of potential commercial and recreational use and development approaches. In it, the Study identified 13 Special Area Rules relevant to the study area, and included the PFAs Rule among them. The Study simply stated that fishing is permitted in the study area in accordance with NJDEP regulations—recognizing the applicability of the PFAs Rule. However, the Study went on to inaccurately state that sand mining “in the immediate area” was “precluded” if it could alter the bathymetry. That is not the text, or the effect, of the PFAs Rule and reveals a misconception about prime fishing areas, how they are classified, what uses are permitted, and those that are prohibited.

In 2016, the ACoE prepared a Coastal Zone Management Act Consistency Statement for the Union Beach project site of a broader Hurricane and Storm Damage Reduction Project. The Statement was part of a supplemental environmental review prepared due to engineering design changes to this piece of a broader sand mining and beach erosion control project. The Statement simply states that the selected plan will use sand from the Sea Bright Offshore Borrow Area, which has been used as a sand source since 1989 and is not a prime fishing area. The ACoE concluded that the project is consistent with the PFAs Rule. This statement is repeated in various ACoE documents for this piece of a much larger project. Doing so prevents any periodic reevaluation of potentially changed conditions since the original determination that the borrow area was not a PFA back in 1989. The ACoE consistently relies on earlier evaluations that can sometimes be a decade or older. The concern is that this may lead to a project applicant relying on old information to make new decisions because the rule does not require periodic evaluation. This is a weakness in the reliance on tiered assessments for potentially changing conditions offshore.

In the most significant examples, i.e., multi-million dollar Federal projects spanning upwards of 50 years, expressly prohibited activities have been allowed to proceed as conditionally approved and thus consistent, with no clear rationale provided. One such project involves the placement of beachfill sand that the ACoE would obtain from offshore sources to construct a berm and a dune to reduce potential storm damage for coastal communities between Great Egg and Townsends Inlets. In the ACoE’s EIS, the EPA expressed concern around the cumulative impacts this sand mining would have on the offshore lumps, shoals, etc. in and near the borrow areas as well as concerns around the lack of monitoring information, a requirement for the final EIS. At that time, the ACoE Philadelphia office admitted their projects haven’t included monitoring, so they were unable to provide that information. The ACoE acknowledged their activities were done under individual permits lacking any monitoring requirements. 176

At issue, and at the center of the EPA’s concerns, was the ACoE’s acknowledgement of the historically productive fisheries of the waters in the project area and the recognition that some of the project borrow areas had large surf clam stocks. During the environmental review, NJDEP expressed concern about the PFAs Rule, which gave rise to buffer areas and monitoring requirements, NJDEP granted consistency with no additional conditions. The apparent rationale for the determination was that the potential impacts were expected to be insignificant due to large measure to assumptions about how the dynamic inlet environment would mitigate the harm to the PFA. In the case of Great Egg to Townsends Inlet, NJDEP effectively disregarded its own earlier findings and waived the requirements of the PFAs Rule, where it had earlier found the activity to be prohibited.

Category C: The PFAs Rule is applicable to a proposed activity in a coastal area and the proposed activity is inconsistent with the rule.

With the passage of time and the shifting need for sand, the Great Egg to Townsends Inlet project expanded its borrow area to encompass prime fishing grounds. This change subjected the project revisions to review where the implicated PFA and the PFAs Rule could be considered. Despite previously documented concerns about impacts to fisheries, which gave rise to buffer areas and monitoring requirements, NJDEP granted consistency with no additional conditions. The apparent rationale for the determination was that the potential impacts were expected to be insignificant due to large measure to assumptions about how the dynamic inlet environment would mitigate the harm to the PFA. In the case of Great Egg to Townsends Inlet, NJDEP effectively disregarded its own earlier findings and waived the requirements of the PFAs Rule, where it had earlier found the activity to be prohibited.
the New Jersey continental margin to understand how the sediment deposits are arranged during the time of sea level rise dating from 60 million years ago to the present. Certain seafloor features that have been flooded by today’s oceans are unidentified using 2D seismic data, even though their existence is known from core samples. The stated end goal is to image the erosional and depositional features using 3D seismic data, which would allow subsequent studies on changes in sea level.

The seismic survey was scheduled to occur in 2014 after receiving all necessary state and federal approvals, but the boat encountered problems only a few weeks into the survey, pushing the survey into 2015. In fall 2014, the NJ Assembly introduced a statement calling upon the NSF, Rutgers, and others to halt the project out of concern for the welfare of marine mammals and concern for fisheries, noting that the potential interest of oil and gas in the results also caused concern that it could pave the way for offshore drilling.

Because of the delay, NSF had to gain new approvals for the 2015 survey. The major focus of review was the impact on marine mammals, but included a discussion on recreational and commercial fisheries in the area. NOAA noted that EPH may be impacted but did not impose any specific conservation recommendations or actions, and only recommended additional studies be done to better understand the effects that seismic surveys may have on EPH. In addition to federal agencies, New York State also engaged in the consultation process, ultimately finding the proposed action consistent with the state’s enforceable policies. New York only asked for a survey schedule change to reduce interference with commercial fishing uses and reduce likelihood of reasonably foreseeable effects on commercially important fish stocks.

Regarding New Jersey, NSF determined the proposed study was not a listed activity for NJ’s CMP and wasn’t required to develop a consistency determination, but still offered the state a review opportunity. NSF submitted a Consistency Determination to NJDEP, which NJ reviewed and returned as inconsistent in March 2015, based on three enforceable policies, including the Prime Fishing Areas rule. This led to a mediation between NSF and NJDEP.

While the mediation was pending, NSF’s final consistency determination determined the proposed action was “consistent to the maximum extent practicable with the enforceable policies of NJ’s CMP.”

Based on the “impact test” adopted by NJDEP, NSF determined the PFA rule does not prohibit or planning to permit the use of the waters of the outer continental shelf. This report outlines how states can protect their coastal resources, like fish and fish habitat, in state or federal waters through the enforceable policies of their Coastal Management Plans and in their coastal consistency review powers. The report has so far described how PFAs are meant to work in permitting and planning. Below are two case studies highlighting how permitting agencies have considered PFAs when planning for and permitting sand mining off the coast of New Jersey and offshore wind in the New York Bight.

The conclusion drawn between the two case studies is that without a coordinated state and regional effort to engage stakeholders to fully review sand borrow areas that will allow for planning and complete consideration of the impacts to fish and fish habitat in Prime Fishing Areas, the risks to destroying the productivity and viability of these special places will continue. In addition, while the offshore wind planning process has had more engaged stakeholders through the advent of ocean planning and PFAs have been better recognized in the offshore wind process, there still remains a real risk to PFAs being lost or significantly altered when planning turns to actual environmental review and permitting of wind turbines and cable routes.

Case Study 1: New Jersey Sand Mining

New Jersey has a love affair with wide, sandy beaches. These beaches embody the “Jersey Shore” but also require that the state go to great lengths in order to maintain their viability and survivability, especially over the last couple of decades. By nature of the dynamic coastal zone and how sand moves, this necessarily means rebuilding beaches only to again need to replenish that sand, and the demand for even more sand continues.

New Jersey has been engaged in this battle against erosion of its fabled coastline for more than 100 years.
due to intense development of its barrier islands and increased storm and hurricane activity in the early 1900s. New Jersey’s beaches are not only a vital recreational resource, but also a buffer between ocean waves and landward development. As a result, the state has an interest in maintaining its beaches for public recreational use and shore protection.

Interest in shore protection in New Jersey began in the mid-1800s and increased following a series of strong storms and hurricanes that battered New Jersey’s barrier islands between 1915-1921 as the growing populations of New York City and Philadelphia began moving into New Jersey’s coastal areas. This need to protect beaches and homes from coastal storm impacts prompted piecemeal beach engineering solutions, such as groins and revetments. The state built bulkheads to armor the coast and slow the inevitable and ongoing erosion process. Unfortunately, this approach brought about many failed projects that were also sometimes counter-productive. Beach replenishment via the use of pumping or dredging sand from bay areas or the ocean floor began in the 1930s.

In 1981, New Jersey developed a Shore Protection Master Plan to bring about a regional approach, including consideration of whether projects would negatively impact each other. The relationship with beach replenishment projects strengthened and became routine practice for the Jersey Shore. While the Master Plan may have helped bring a regional approach to beach replenishment, it has not always led to a positive result for offshore habitat.

**Harvey Cedars Lump**

In 1991, New Jersey developed plans for a beach replenishment project for part of Long Beach Island utilizing an area offshore identified by the state as Borrow Area D1 (Figure 11). This area is also inclusive of an area known to anglers as the Harvey Cedars Lump, an identified New Jersey PFA.

In 2000, Congress authorized this project for construction, with the initial three sections of the project completed using Borrow Area D1, with a total of 5 million cubic yards placed on several barrier island beaches along the central Jersey Shore over the span of 7 years.

- From 2006 to 2007, approximately 886,000 cubic yards (cy) of sand was placed on 8,100 linear feet of beach between Surf City and Ship Bottom;
- In 2010, approximately 3,000,000 cy of sand was placed on 10,450 linear feet of beach in Harvey Cedars; and
- In 2012, approximately 1,200,000 cy of sand was placed on 5,200 linear feet of beach on the Brant Beach section of Long Beach Township.
In addition to this initial construction, the ACOE conducted two emergency repair actions in 2011 and 2013 in response to severe coastal storms causing damage to the originally completed project sections, totaling another 2.3 MCY of sand.182

This initial and emergency repair beach replenishment project resulted in the depletion of the Harvey Cedars Lump PFA. The Harvey Cedars Lump PFA was once full of fish and generally promised an angler a good day’s catch of hait, blues, bass, seabass, and fluke.183 The beaches that received sand may have been widened and dunes heightened, but the Harvey Cedars Lump Prime Fishing Area was completely mined out of existence by 2012.

Post Hurricane Sandy in 2012, New Jersey found itself once again in great need of sand. The state prioritized efforts to both restore the significant loss of beaches and protect the coast from future storms. Among those efforts is the ACOE’s Storm Damage Reduction Project (Project) (Figure 12, previous page), a specific beach nourishment and restoration project extending approximately 13.7 miles along the Atlantic coast from the Manasquan Inlet to the Barnegat Bay Inlet, ending at the northernmost portion of Island Beach State Park.184

The ACOE’s 50-Year Plan calls for construction of a beach-fill with a berm and dune along the study area oceanfront utilizing sand from an offshore borrow source and periodic nourishment. Initial fill requirements would be about 10 MCY, with periodic nourishment at 4-year intervals with about 1 MCY placed.185 This means the life of this project will require almost 23 MCY of sand, which is about 7000 times as big as an olympic swimming pool. To acquire the sand needed for the project, the ACOE targeted the use of five existing sand borrow areas off the New Jersey coast. Four of these borrow areas are in state waters. Borrow areas A, B, D and E are located between 1.75 miles and 2.4 miles offshore of the project area. The fifth borrow area, F2, is located in federal waters, 4.6 miles offshore of Mantoloking in the Outer Continental Shelf.

Borrow Area B (Enrock Lump)

At least two of the borrow areas identified for the project are controversial due to their importance as historical fishing grounds, just like the Harvey Cedars Lump PFA. First is Borrow Area B, an area in state waters just outside of the Axel Carlson Reef, also known to fishermen and mapped on the Mid-Atlantic Ocean Data Portal as Enrock/Inrock Lump Prime Fishing Ground. Second is Borrow Area F2, a large mound in federal waters known to fishermen as the Manasquan Ridge and also identified by the state as a PFA.186 The ACOE intends to use Borrow Area B for the initial berm construction and nourishment effort. Borrow area F2 has been identified as a source for the subsequent periodic re-nourishment (Figure 13).

Post Hurricane Sandy, when the State of New Jersey was undertaking their review of this specific portion of the project, representatives of the fishing community and the American Littoral Society advocated to NJDEP regarding the importance of the identified borrow areas as special places for fish and fish habitat. To avoid another loss of a PFA like the Harvey Cedars Lump outcome, recreational anglers raised concerns during the ACOE’s environmental assessment and review process about the possible mining of these two more northern PFAs for a portion of the initial berm construction without concern for the impacts to fishing productivity.

It is important to know that over ten years earlier in a 2002 FEIS the ACOE stated that cumulative effects are a concern, that the number of projects have increased, and dredging becoming quite common. The ACOE acknowledged that while individual dredging actions are generally considered to have only short term and minor adverse consequences, no study supports extending this conclusion to regional or national cumulative impacts.187 The consultation (and re-consultation) processes have been the only mechanism to force consideration of changed circumstances, including bathymetry, geomorphology, water quality, and fishing grounds/area changes.

On March 21, 2014, in response to a request from the ACOE regarding Borrow Area B, NJDEP issued a concurrence to the ACOE’s positive CZMA Consistency Determination that the mining of Borrow Area B with certain conditions was consistent with the enforceable policies of New Jersey’s CMP. The permit conditions for Borrow Area B required ACOE undertake a sand assessment plan, bathymetric surveys, and habitat improvement plan to address anticipated impacts.

The angler community engaged with NJDEP and the ACOE around sand mining activities at several Prime Fishing Areas. Borrow Area B (Enrock Lump PFA) was specifically called out in correspondence to their membership noting that the activity was modified to maintain the PFA’s profile:

The DEP and ACOE are well aware of the fishing community concerns on habitat loss and are making an effort to work with us to lessen the amount of sand needed to be taken from lumps specifically the Enrock Lump, aka Borrow Area B, and Manasquan Ridge.

Borrow Area B, located inshore of the Axel Carlson Reef, sits...
in 60-65’ of water and has a 10’ profile. The original dredging plan was to take almost the entire lump consisting of 7.5 MM cu yds of sand. That plan has been modified to take a lesser amount, 5.0MM cu yds, and to still maintain a 10’ profile. This will be accomplished by dredging deeper around the base of the lump.\(^{188}\)

The NJDEP’s use of a conditional approval was effectively used to circumvent the policy prohibition of sand mining in a PFA. The outcome and findings of the conditions imposed for the perimeter dredging must be measured against the prohibited uses of these Prime Fishing Areas, which includes “sand or gravel submarine mining which would alter existing bathymetry to a significant degree so as to reduce the high fishery productivity of these areas”. No formal guidance exists regarding what kind of impact to PFAs amounts to “a significant degree”, leaving the finding to a reviewer’s best professional judgement and a continued lack of consistent application of the rule.

As of October 2020, the ACoE has not yet initiated an environmental assessment process for utilizing Borrow Area F2, also known as the Manasquan Ridge PFA. Recreational anglers had to create their opportunity to highlight concerns around the use of Borrow Area F2/Enrock Lump. They used this opening as an opportunity to advocate around protecting the integrity of Prime Fishing Areas overall. It is unclear how or when the ACoE or NJDEP will engage them in future conversations around sand mining, especially as it pertains to the use of Borrow Area F2/Manasquan Ridge PFA.

Case Study 2: New York Bight Offshore Wind Planning

The New York Bight has been the subject of offshore renewable planning efforts for almost a decade. For instance, in 2011, the Bureau of Ocean Energy Management put out a call for “information and nominations” (the Call) for an area off the New Jersey coast, called the New Jersey Wind Energy Area (NJ WEA).\(^{189}\) The Call is meant to get a sense of whether there is commercial interest in developing offshore wind facilities in that area and gathering information about the area itself.

While the 2011 Call made no mention of Prime Fishing Areas, it did utilize New Jersey’s Ocean/Wind Power Ecological Baseline Studies to both develop the boundary of the NJ WEA by identifying areas of exclusion identified within the Final EBS.\(^{190}\) This included the exclusion of many environmentally sensitive categories defined in the Final EBS, ranked in order of priority. Second in priority for exclusion are shoals because “they function as feeding grounds and nurseries for various pelagic and bottom-dwelling species, as well as serve as fishing/feeding hotspots for recreational and commercial fishermen, birds, sea turtles and marine mammals.”\(^{191}\) It is unclear how closely this exclusion tracks with mapped prime fishing grounds, but certainly many PFAs contain shoals (Figure 14).

The Call returned much interest from the wind industry in the NJ WEA. BOEM eventually leased the New Jersey WEA as two leases (OCS-A 0498 and OCS-A 0499), totaling over 340,000 acres off the coast of New Jersey,\(^{192}\) which overlaps with 20 PFAs throughout both lease areas.

In 2018, the New York State Energy Research and Development Authority (NYSERDA) developed an Offshore Wind Master Plan to support New York’s then goal of reaching 2,400 MW of offshore wind by 2030. NYSERDA’s Master Plan encompassed both a roadmap for the state and a set of 20+ studies to encourage wind development that will be “sensitive to environmental, maritime, economic, and social issues.”\(^{193}\) Within the Master Plan is the identification of an “Area for Consideration” (Figure 15) for potential offshore wind development to specifically help New York state meet its 2,400 MW goal. This Area for Consideration is found 21 miles from land, in the middle of New Jersey’s offshore region, totaling over one million acres.\(^{194}\)
The state then formally petitioned BOEM to identify and lease at least “four new Wind Energy Areas” within the state’s Area for Consideration. BOEM worked with the New York DOS, NYSERDA, and the Renewable Energy Task Force for the New York Bight to establish the “Call Areas” debuted in its April 2018 Call. The Call asked for information and nominations by companies that were interested in leasing part of the four distinct Call Areas for future construction of a wind energy project. These new Call Areas incorporated and expanded upon NYSERDA’s Area for Consideration, which BOEM identified as Hudson North and South Call Areas. In doing so it also added to the potential PFA conflict by expanding into three PFAs that the NYSERDA Area of Consideration did not include and almost wholly overlapping with a PFA that the original Area of Consideration only barely encroached upon.

BOEM’s possible subsequent decision to offer all or part of the Call Areas for commercial wind leasing. BOEM also specifically recognized that it was also aware that several areas identified by the New Jersey Department of Environmental Protection’s Sport Ocean Fishing Grounds atlas are within the Call Areas. These are New Jersey’s PFAs by another name. BOEM listed the PFAs and then asked for information regarding recreational and commercial fisheries that operate within these Call Areas, including, but not limited to, the use of the area for recreational tuna and marlin tournaments, the fishing gear types used, seasonal uses, and suggestions for reducing use conflicts.

After putting out the Call, interested stakeholders had 45 days to provide BOEM input through written comments. Early in the comment period New Jersey Governor Phil Murphy wrote BOEM urging for a comment extension, which BOEM granted. The NJDEP then worked with BOEM to convene three specific meetings to gather input to help ensure the voices of New Jersey’s marine resources stakeholders were heard around reducing potential user conflicts and potential adverse impacts to marine species and habitats.

The Society attended one of these meetings and provided detailed comments highlighting our call for responsibly sited wind that: utilizes the ocean data portals to identify conflicts and special places; avoids PFAs, migratory pathways, special environmental areas; utilizes MARCO and MACO as important forums as...
the place to ensure consistent standards for wind across the region that protects the environment and a successful wind industry; and recognizes and addresses impacts from cable transmission lines through state waters and the onshore development of substations. In the end, BOEM received 132 comments from the public, federal and state agencies, fishing industries, industry groups, developers, ENGOs, and universities.201

After the closure of the extended comment period, BOEM took that input and held three fishery stakeholder public meetings in New Jersey, New York, and Massachusetts during September 2018 to discuss feedback from fishing interests given during the comment period. It was at these meetings where BOEM first previewed a potentially modified Call Area. In November 2018, BOEM formally came out with smaller draft Wind Energy Areas of recommendation (Figure 17). These smaller areas appear to recognize at least some input BOEM received from multiple stakeholders around the overlap of the original call areas and the 17 PFAs found within them. The new draft Wind Energy Areas of primary and secondary recommendations have a smaller footprint, taking four PFAs completely out of the recommended WEAs and decreasing the overlapping footprint on two PFAs.

At the time of the 2015 New Jersey solicitation, collaborative regional ocean planning was in its early years and ended up offering less than meaningful stakeholder engagement across stakeholder groups like anglers, so impacts to PFAs were not a focus of the planning effort. However, in 2018 when New York developed its Area of Consideration, offshore wind was a large component to the Mid-Atlantic regional planning effort and federal agencies like BOEM made a point of utilizing the Mid-Atlantic Ocean Data Portal and the ocean planning meetings to showcase the New York Bight process to stakeholders and other regional decision-makers. BOEM itself even touted regional ocean planning, saying it “appreciates the importance of coordinating its planning endeavors with other OCS users, regulators, and relevant federal agencies.”201

It is clear that having stakeholders who were more aware, informed, and engaged in 2018 than the New Jersey 2015 call and solicitation process led to a more desired outcome. One of the most important tools stakeholders used in the 2018 New York Bight process was the Mid-Atlantic Regional Ocean Data Portal, developed through the Mid-Atlantic ocean planning effort. The Mid-Atlantic Portal provided ocean users like the commercial and recreational fishing communities the opportunity to shine a spotlight on important places like PFAs that could be impacted by creating maps to show regulators what would otherwise be much harder to convey.

As of October 2020, the New York Bight draft recommended Wind Energy Areas, which still overlap with several PFAs, have not yet been finalized into Final Wind Energy Areas. Doing so would move the process toward the solicitation of bids for actual leases within at least some portion of the final WEAs. BOEM was slated to finalize the draft WEAs in 2019 but has not yet done so. This may be due to intense commercial fishing pressure but is unclear. Lawmakers and stakeholders have been urging BOEM to finalize this process.201

Importance of Prime Fishing Areas to Anglers

PFAs are important to New Jersey’s recreational fishing community. We know this because, as detailed in the history of the PFAs Rule, the state prioritized recreational fishermen in the 2003 PFA map identification and expansion. We also know this because recreational anglers have told us this over the last 18 months.

The American Littoral Society created and maintains one of the oldest fish tagging programs in the United States. Since the beginning of the program in 1965, more than 640,000 fish have been tagged by our volunteer taggers. For over 50 years we have built long-lasting relationships with recreational anglers and presented to hundreds of fishing clubs all along the east coast.

Because of our long-trusted relationships and ongoing interactions with anglers, we were in the unique position to conduct outreach and host events to engage recreational fishermen around their involvement with ocean planning. That outreach turned into discussions and meetings around the current and future state of recreational fishing and PFAs given the increasing footprint of Mid-Atlantic offshore wind and sand mining. Beginning in early 2019 and continuing over approximately 18 months, the Littoral Society engaged with recreational anglers to assess their knowledge of mapped PFAs and gather their concerns around competing ocean uses. This section details the outreach and findings from this engagement.

In 2019, the Society hosted an offshore wind development forum in Toms River, New Jersey, attended...
by over 60 recreational anglers. The event included several wind developer representatives who provided presentations about projects through a panel discussion and a Q&A session with attendees.

Over the remaining course of 2019 and early 2020, we continued outreach around fishing and offshore ocean uses such as wind energy development and sand mining. We presented to 10 separate fishing clubs, engaging over 200 individuals. We gathered feedback during these meetings through use of the Mid-Atlantic Ocean Data Portal for visual representation of PFAs and mapped potential conflict demonstrations.

To further support this work, we contracted the Coastal Research Center at Stockton University to develop mapping resources utilizing data from the Mid-Atlantic Ocean Data Portal for our 2020 outreach and engagement.

In early 2020, we distributed those maps and initiated a survey to select recreational anglers, members of our fish tagging program, to help prioritize the named PFAs identified and recognized by New Jersey. We did so recognizing that angler capacity to review maps could not support a full assessment of the 140+ PFAs, so by prioritizing a set of PFAs we could help begin a conversation around their importance to anglers.

We deployed the survey to over 40 anglers in the New Jersey and New York region via email and phone interviews. The survey collected information about anglers’ most fished, or most valuable, areas. Making initial contact proved to be difficult and sometimes several emails or phone calls were necessary. At first some anglers were skeptical about providing input, though many agreed after we detailed our ask and they fully understood the use conflicts. The survey results allowed us to create a refined map of 10 named PFAs, which we then used in our next level of mapping and engagement with a wider audience of anglers.

The next step was to convene three in-person focus groups in Cape May and Point Pleasant, New Jersey, and Baldwin, New York in late March and April 2020. However, the COVID-19 pandemic hit the east coast hard the weeks prior to our focus groups and the focus groups were first delayed and then ultimately cancelled as New York and New Jersey hunkered down in lockdown through the spring of 2020.

The project regrouped and pivoted, turning the in-person focus groups into a virtual workshop held in late spring. During this session we deployed questions and polls to anglers about those 10 specific PFAs with ocean use conflicts mapping overlaid (Figures 18, 19). [View and download all maps at our website: protectfish.org/maps]. It was not an easy task to build meaningful relationships with the fishing community in a virtual format. We learned during our workshop that anglers are out in PFAs all along the coast and it was impossible to limit the input to only 10 locations; we needed to meet each angler where they fish. That meant going forward through the summer months.
by adapting our map areas to support each angler as needed via the Mid-Atlantic Ocean Data Portal. Throughout the summer, we conducted additional one-on-one angler outreach and engagement using the same mapping layer resources and questionnaires via email, phone, and virtual group presentation.

The main takeaway is that PFAs are of great importance to anglers. Anglers consistently fish in and around New Jersey’s PFAs and have a wealth of information regarding the status, species, and use of these areas. The following are the main points made by anglers about use conflicts, during this outreach project.

**Offshore Wind**

Anglers responding to our survey were specifically concerned that:

- Windfarm development near existing PFAs has a high likelihood of:
  - creating habitat and species assemblage changes.
  - impacting and preventing recreational fishing at PFAs during construction, especially during summer and fall fishing due to restrictions placed on activity in the surrounding area and conflicts with working vessels.
  - creating navigational hazards.

- Windfarm development near existing PFAs has a medium likelihood of

  - interfering with fishing via security boats pushing anglers away from structures.

In addition, anglers overall are generally concerned about the following:

- Most anglers question how their engagement will take place throughout the development processes, whether or not there will be ongoing dialogue, and if their input will be considered in a meaningful way.

- Anglers noted the risk of transformer oil contamination during maintenance operations.

- They worry there will ultimately be no anchor or fishing zones around wind farm areas. There is skepticism around the Block Island wind farm in state waters off Rhode Island and whether it is a reasonable or reliable example of fishing access to projects in federal waters. They question what will be the Homeland Security position on exclusions to an area; of particular concern are the substation zones.

- They are concerned there is not enough scientific study to make fully informed decisions about long term impacts on fish and fish habitat, including cable routes and electromagnetic fields (EMF). They believe there is evidence of species refusal to cross electrical cables, including at the Block Island Wind Farm.

- They are concerned about the destruction of near shore areas from transmission line installation or maintenance (e.g. Orsted Ocean Wind Project: Judges Shack, Clam Beds, Tices Jump, and Cedar Creek wreck).

- The ability to maintain adequate distance between turbines and turbine wake effects (spacing between turbines for safe navigation and fishing).

- Habitat creation and fish aggregation and the pros and cons of different types of foundation structures.

- Impacts to sea life during development and decommissioning: foundation installation or removal (especially if functioning as new habitat); water quality impacts; and piling driving or general noise disturbances; as well as decommissioning terms and options (e.g. turbine removal with foundations left in place).

- Lack of large pelagic studies, for example tuna and whales.

- The need for shallow water studies on turbines in rough seas, especially hurricane conditions.

- A request from recreational fishermen that we encountered during our surveys was to provide permanent moorings for anglers wishing to anchor near the turbines to conduct stationary fishing. This would provide a safer environment for fishermen, while minimizing any interaction between anchoring gear and the structure or cables.

- Given that the presently proposed lease areas for wind turbine construction are predominately greater than 15 NM offshore, the most affected sector of the recreational fishing community will be those whose target species are pelagic sharks, and bluefin tuna.
Sand Mining

Anglers responding to our survey were specifically concerned that:

• Sand mining near/trenching around/or complete removal of existing PFAs has a high likelihood of:
  - disrupting fishing activities while the activities take place in or around the PFA
  - causing a permanent loss of the PFA resource, especially with complete removal of a prime fishing ground feature (i.e. a lump or ridge)

• Sand mining/trenching around near existing PFAs has a medium likelihood of:
  - causing sediment deposits in areas that affect benthic communities

In addition, anglers are generally concerned about the following:

• Local New Jersey projects have caused certain northward species migration (Back Bay Laurence Harbor); and

• Sediment transport models need to be implemented.

• Quite often PFAs are targeted for mining because they are, by their physical nature, easy locations for the quantities and compatibility of their sand for beach replenishment needs.

Our work with recreational anglers has found that they are generally removed from many regulatory and planning processes taking place (e.g. public comment periods, task force meetings, call for lease areas, etc.) where their knowledge or input would be most valuable, especially early on for specific planning of offshore sand mining borrow areas or wind development projects.

Overall, it is clear from our many interactions with anglers for this report that there remains a need for a coordinated effort throughout the mid-Atlantic region to engage recreational fishermen as stakeholders. Without this dialogue, there remains the risk that PFAs will be impacted without appropriate consideration or worse yet, undermined or completely destroyed of their historic fishing productivity.

Strong stakeholder engagement practices, regional ocean planning, and responsible siting guidelines for each proposed use or project will be critical moving forward. A set of insight and next steps to move forward with PFAs, angler engagement, and regional planning are highlighted in Part Four.
Insights and Recommendations

During the development of this report and outreach to recreational anglers, several issues, points of clarity and concerns bubbled to the surface. This section organizes them into three main categories: angler insights, which contain the ideas and concerns most pressing to anglers from our 18 months of outreach around PFAs, sand mining, and offshore wind development; Prime Fishing Area Rule insights, which contains the issues and concerns developed around the state’s application of the PFAs Rule; and our policy insights that have overarching statements from observations made over the course of the project.

Finally, we detail a set of conclusions, which we have developed as recommendations for potential paths forward, both specifically in New Jersey and more broadly at the Mid-Atlantic regional level to ensure Prime Fishing Areas can be properly considered and protected while allowing for responsible development in the offshore.

Angler Insights

- Recreational anglers are extremely knowledgeable and passionate about their fishing grounds. Although there are representative advocacy groups, many voices are often overlooked as stakeholders due to the more individual nature of fishing activities.

- Generally, the angler community interviewed supports the accuracy of the currently mapped PFAs. Anglers only identified species present but not listed and potentially unmapped PFAs, but did not disagree with currently identified areas or species listed as present.

- Overall, anglers are unaware of the scope and magnitude of planned offshore projects like sand mining and offshore wind development and how or when to provide input.

- Notice and engagement of individual anglers is lacking and results in them feeling added as stakeholders late in a project's development or once it has already occurred and impacted them.

- Anglers would like permanent moorings for recreational fishermen wishing to anchor near the turbines to conduct stationary fishing.

- Anglers have a wealth of real-time information about species presence and absence within Prime Fishing Areas. Current less than optimal engagement mechanisms miss the opportunity to capture and integrate on the water experience and observations resident in the recreational angling community.

- Anglers are often removed from planning processes where their knowledge would be most valuable. There’s a need to engage recreational fishermen as stakeholders (photo by John Gattuso).
Prime Fishing Area Insights

- The regulatory definition of Prime Fishing Areas is inclusive of the mapped prime fishing grounds found on the Mid-Atlantic Ocean Data Portal and any unmapped area that meets the PFA definition, though it is often interpreted more narrowly.
- Mapped PFAs are often looked at as the sum total of all PFAs, many times without full consideration that unmapped PFAs also exist.
- No definition or threshold exists for sand or gravel mining that would alter existing bathymetry “to a significant degree” that reduces the “high fishery productivity” of a PFA, the actionable requirement of the PFAs Rule.
- New Jersey Prime Fishing Area species data must more accurately reflect historic and current species presence and absence to account for potential impacts, seasonal importance, and potential mitigation options.
- Anglers generally agree that the currently mapped prime fishing grounds, which are part of the PFA network, are accurately identified.

Policy Insights

- The Coastal Zone Management Act programs of Mid-Atlantic states encompass a diverse set of policies and approaches to protect coastal resources, all stemming from their responsibility to protect against federal actions that could impact those resources. Yet because they were created by individual states, they lack the ability to protect fish and fish habitat consistently across the region.
- Many Mid-Atlantic state fish and fish habitat coastal management plan enforceable policies are limited by their lack of place-based, geographic locations (i.e. prime fishing grounds) making protection a harder lift for states to begin an analysis of areas that will be impacted by coastal projects.
- Most Mid-Atlantic state enforceable policies to protect fish and fish habitat lack identifiable data layers on the Mid-Atlantic Ocean Data Portal to assist decision-makers and stakeholders in regional ocean planning efforts, which could help mitigate potential conflicts prior to project siting.
- The strength of a state’s federal consistency review power is only as strong as its enforceable policies and the political will of those reviewing proposed activities against state enforceable coastal policies.
- Delaware is the only Mid-Atlantic state with a Geographic Location Description for renewable alternative energy. This GLD reaches through all of Delaware and parts of New Jersey and Maryland.
- There is inconsistent implementation of the established PFA mechanisms due to a lack of clarity within the design and implementation of the rule:
  > When decision-makers inappropriately interpret the PFAs Rule narrowly by only looking at currently mapped PFAs, managers fail to protect potential unmapped prime fishing areas, likely leading to habitat and fisheries damage.
  > A lack of formal guidance regarding what impact to PFAs amounts to “a significant degree” leaves the finding to a reviewer’s best professional judgement and continued lack of consistent application of the rule.
  > NJDEP’s use of a conditional approval for actions occurring in PFAs effectively allows activities to circumvent the policy prohibition of sand mining in a PFA.
  > PFAs have had a limited effect in some offshore use planning and development. There is a significant difference in application of the rule between how geographically mapped features (i.e. Sport Ocean Fishing Grounds) and unmapped PFAs are addressed.
- Inclusive stakeholder engagement is still missing from the Mid-Atlantic region. It is unclear whether this is due to limited resources, a lack of full involvement by the federal government, or a combination of the two.
- The increasing demands for offshore resources and increasing potential for conflicting uses requires stronger coordinated approaches in project planning and siting across the region.
Recommendations

1. New Jersey DEP should develop guidance that includes adopting a process for identifying and protecting Prime Fishing Areas. The guidelines should:
   a. Identify currently unmapped but known or acknowledged areas that exhibit the characteristics and recreational activity identified in the Rule;
   b. Develop a definition and set standards for what “significant degree” means in determining non-allowable alteration of fisheries productivity value;
   c. Define and articulate prescriptive uses allowed, prohibited, and discouraged by the Rule;
   d. Institute periodic reviews of PFAs species presence or absence with recreational anglers given data gaps in real-time information and shifts in population distributions due to climate change and other ecosystem disturbances; and
   e. Review bathymetric changes to inform evolving PFA conditions.

2. NJDEP should develop a Geographic Location Description for New Jersey’s Prime Fishing Areas that can complement the rule as an existing special area enforceable policy, adding an additional layer of analysis and consideration for PFAs outside of state waters.

3. NJDEP should develop a public online repository for coastal and offshore state or federal projects implicating New Jersey coastal resources. This online repository should contain the department analyses over the life of a project from start to finish. As the New Jersey sand mining analysis shows, many complex offshore projects tier off older, broader analyses, making it imperative that stakeholders have one place to go to understand the actions the state is taking or has taken in developing and permitting a project in order to engage in conversations around new projects, project phases and modifications or changes to existing projects.

4. NJDEP should require applicants to describe Prime Fishing Areas or fishing grounds being considered in or near a state or federal proposed activity by any commonly-known fishing ground name during the environmental review processes to ensure appropriate recreational angler stakeholder engagement.

5. To meet the increasing demands for offshore resources and increasing potential for conflicting uses and impacts to fish and fish habitat:
   a. Mid-Atlantic states must review MARCO’s purpose and commitments and strengthen them around protecting places like PFAs; and
   b. MACO must strengthen its work to better coordinate project planning and siting across the region.

6. Mid-Atlantic states should consider developing a mapped geographic information system (GIS) layer for each fish and fish habitat protective mechanism in order to inform potential resource conflicts as early as possible.

7. MARCO should work with its member states to develop a network and engagement plan for recreational anglers throughout the region to ensure opportunities to capture and integrate on the water experience and observations resident in the recreational angling community. Part of the network’s scope could be to assist states in developing areas similar to New Jersey’s mapped PFAs for inclusion on the Mid-Atlantic Data Portal.

8. MARCO and MACO must facilitate additional engagement of stakeholders with their Offshore Renewable Energy work group by adding public interest member voices.

9. Federal regulators should provide permanent moorings for anglers wishing to anchor near the turbines to conduct stationary fishing. This would provide a safer environment for fishermen, while minimizing any interaction between anchoring gear and the structure or cables.

10. Mid-Atlantic states should increase transparency and public access to decision documents regarding impacts to state coastal resources, including to:
    a. House and publish federal consistency reviews and on a publicly accessible and searchable web portal; and
    b. Develop an online repository for coastal and offshore state or federal projects implicating state coastal resources that contains the department analyses over the life of a project from start to finish.
Footnotes


3 Id.

4 National Oceanic and Atmospheric Administration (NOAA), Northeast Integrated Ecosystem Assessment (NOAA NEIEA), https://www.integratedecosystemassessment.noaa.gov/regions/northeast/Indicator-dataMidAtlanticIndicators (accessed November 5, 2020). The NEIEA developed indicators representing the current status and historical trends of different key components for the NE marine ecosystem. One indicator is community reliance and vulnerability. Social vulnerability represents "social factors that can shape either an individual or community's ability to adapt to change." Social vulnerability indicators can include regulatory changes to fisheries, wind farms, ocean based businesses, natural hazards, commercial and recreational fishing reliance and engagement, sea level rise risk, species vulnerability to climate change, and catch composition diversity.


8 Id.

9 Id.


13 Id. at 9.

14 Id. at 10.

15 Id.


19 US Department of the Interior, Bureau of Ocean Energy Management, Projected OCS Sand Resource Needs and Effort, (June 15, 2018) https://www.boem.gov/sites/default/files/non-energy-minerals/Revised-MMP-forecast.pdf (accessed November 5, 2020). Totals determined by adding the report's baseline and elevated need scenarios for each state. Delaware 2.6MY (no baseline/elevated scenarios given), Maryland 2.4-14.1MY, New Jersey 29-82.1MY, New York is slated to have zero OCS sand required over the next 10 years because of state resources, and Virginia has a range of 7-31MY.


21 Id.


23 Id. at 121-138.

24 Id. at 133.


26 Id. at 10.


33 Id.


35 Id. at 5-32.


37 Id. at 25.

38 Id. at 26.

39 Id. at 25.

40 Id. at 27.


42 16 U.S.C. § 1453(a) and (b)(i).


44 16 U.S.C. § 1456(c).

45 15 C.F.R. 930.35(b).

46 Id.

47 Id.


51 Id. at § II-4, p. 2.

52 Id.

53 Id. at § I, p. 2-3.


56 NY CMP at § II-6, p. 22-23.

57 Id. at § II-6, p. 23.

58 NY State Department of Environmental Conservation, Bureau of Wildlife, Division of Fish and Wildlife, Technical Memorandum: Procedures Used to Identify, Evaluate and Recommend Areas for Designation as ‘Significant Coastal Fish and Wildlife Habitats’ (July 24, 1984).

59 Id.


61 NY CMP, § 11-6, p. 27.

62 Id.

63 Id. at p. 28.
64 Id. at p. 31.
65 Id.
66 Id.
72 Id.
73 N.J.A.C. 7:7-9.1(a).
74 N.J.A.C. 7:7-1.5.
75 Other Coastal Rules provide additional protections to fish and fish habitat, including the Shellfish Habitat Rule, the Surf Clam Areas Rule, the Wetlands Rule, the Wetlands Buffer Rule, the Riparian Zones Rule, the Flood Hazard Rule, the Intermittent Stream Corridors Rule and the Public Open Space Rule. N.J.A.C. 7:7E-3.27, -3.28, -3.25, -3.26, -3.32 and -3.40.
76 N.J.A.C. 7:7-9.4(a).
77 N.J.A.C. 7:7-9.4(b).
78 N.J.A.C. 7:7-9.5(a).
79 N.J.A.C. 7:7-9.5(b).
80 N.J.A.C. 7:7-9.5(c).
82 N.J.A.C. 7:7-9.36(b).
83 N.J.A.C. 7:7-9.6(a).
84 N.J.A.C. 7:7-9.6(b).
85 N.J.A.C. 7:7-16.2(b).
86 Id. at (c) (1)-(5).
87 Id. at (c) (2)(i)-(iv).
89 Secretary of the Department of Natural Resources & Environmental Control, Memorandum of Delegation, From the Secretary of the Department of Natural Resources & Environmental Control To the Director of the Division of Climate, Coastal, and Energy (August 23, 2018), https://coast.noaa.gov/czmp/program-change/#/public/program-change/1227 (accessed November 16, 2020).
92 7 Del. C. 1953, § 7001.
93 Id.
94 Id.
95 81 Del. Laws Ch. 120 (August 2, 2017).
96 Id.
100 DE CMP Policy 5.3.1.4; 5.3.1.5.
101 DE CMP Policy 5.3.1.10.
102 DE CMP Policy 5.3.1.11.
103 DE CMP Policy 5.3.1.13.
104 DE CMP Policy 5.3.1.15.
105 DE CMP Policy 5.3.1.19.
106 DE CMP Policy 5.11.1.
107 DE CMP Policy 5.11.2.
108 DE CMP Policy 5.11.3.
110 DE CMP Policy 5.11.3.
111 DE CMP Policy 5.11.4.
113 Maryland's Coastal Zone, Maryland Department of Natural Resources, https://dnr.maryland.gov/ccs/Pages/md-coastal-zone.aspx (accessed November 6, 2020).
114. Id.


129. VA Code § 28.2-1302.

130. VA Code § 28.2-1302 § 2.

131. VA Code § 28.2-1302 § 3.

132. VA Code § 28.2-1302 § 4.A.
155 N.J.A.C. 7:7-12.1(c).
156 Id.
157 N.J.A.C. 7:7-16.2
158 N.J.A.C. 7:7-16.2(c)(2)(iii).
160 Id. at 27.
162 Id.
163 Id.
164 Id.
165 Id.
166 Id.
167 Id.
170 Id.
171 New Jersey DEP Consistency Determinations are not collected in a database or library that is readily accessible, if at all, online. Requests for information pursuant to the New Jersey Open Public Records Act for additional information associated with various Department permit application files and decisions have been relatively unsuccessful. As such, any analysis by the Department in connection with consistency requests is unavailable and the factual statements made in this section, and conclusions drawn about the way in which the PFAs Special Area Rule has been applied, are based wholly on the documents found in our public documents desktop review.
172 This is found in the project’s Final Integrated Hurricane Sandy General Reevaluation Report & Environmental Assessment.
177 Id. at 6.2.5.2.2.
178 In a 1998 letter to ACOE from NJDEP in response to initial information about the study area (A-25 of 2001 Appendix A), DEP pointed out several areas, in particular lumps, that should be avoided as borrow areas, and also indicated the monitoring and mitigation would need to be coordinated with NJDEP. There were a series of subsequent letters included in the record indicating NJDEP’s concerns about fishing areas. DEP’s preference was to have the inlets used as the borrow areas. These preferences were restated in an April 1999 letter to ACOE upon review of the benthic study (A-33). In response to revisions in 1999, NJDEP indicated the conditions upon which it would give its support for revised borrow areas...L2, M3 and O1 were all to be avoided. NJDEP stated with respect to M3 that while it is not designated as a PFA, it serves the same purposes and should be avoided. With respect to L1, NJDEP requested that it be shown that it would not be adverse on L2. They expressly stated that M3 and L2 should not be borrow areas, L1 could only be used if no adverse impact, and that it expected that the excavation should be shaped to mimic the bottom contours. (A-39).
180 Id.
181 New Jersey Department of Environmental Protection, Division of Coastal Resources, New Jersey Shore Protection Master Plan (1981).
182 In 2011, 300,000 cy was placed in Surf City in response to severe Nor’easter storms that caused severe erosion during the prior two winters. In 2013, the ACoE conducted emergency repairs along the completed sections of Long Beach Island, placing approximately 880,000 cy in Brant Beach, approximately 280,000 cy of beach fill in Surf City, and approximately 840,000 cy of beach fill in Harvey Cedars.
185 Id.


190 Id. at 22136.
191 Id.


196 Id. at 15602.
197 Id. at 15606.
198 Id.


