

Below the Surface: Striving to Maintain Climate Ready and Productive Estuaries



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Casey's primary responsibilities at the North Carolina Division of Marine Fisheries include drafting updates of the Coastal Habitat Protection Plan, or CHPP, and fisheries habitat assessment projects. She also coordinates with staff of other state and federal habitat initiatives and is involved with a variety of CHPP-related implementation actions. Casey received a bachelor's degree in Zoology, with a concentration in Biodiversity and Conservation and Master's in Fisheries Science from Auburn University. She grew up in Winston-Salem, NC, and currently lives in Wilmington. Casey is proud to be a steward to the amazing natural resources of coastal North Carolina.



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DEPARTMENT OF ENVIRONMENTAL QUALITY

Marine Fisheries

2019 NC Coastal Resilience Summit | Casey Knight | June 11, 2019





North Carolina Coastal Habitat Protection Plan

2016

NC Department of Environmental Quality

Enhancing coastal fisheries through habitat protection and restoration

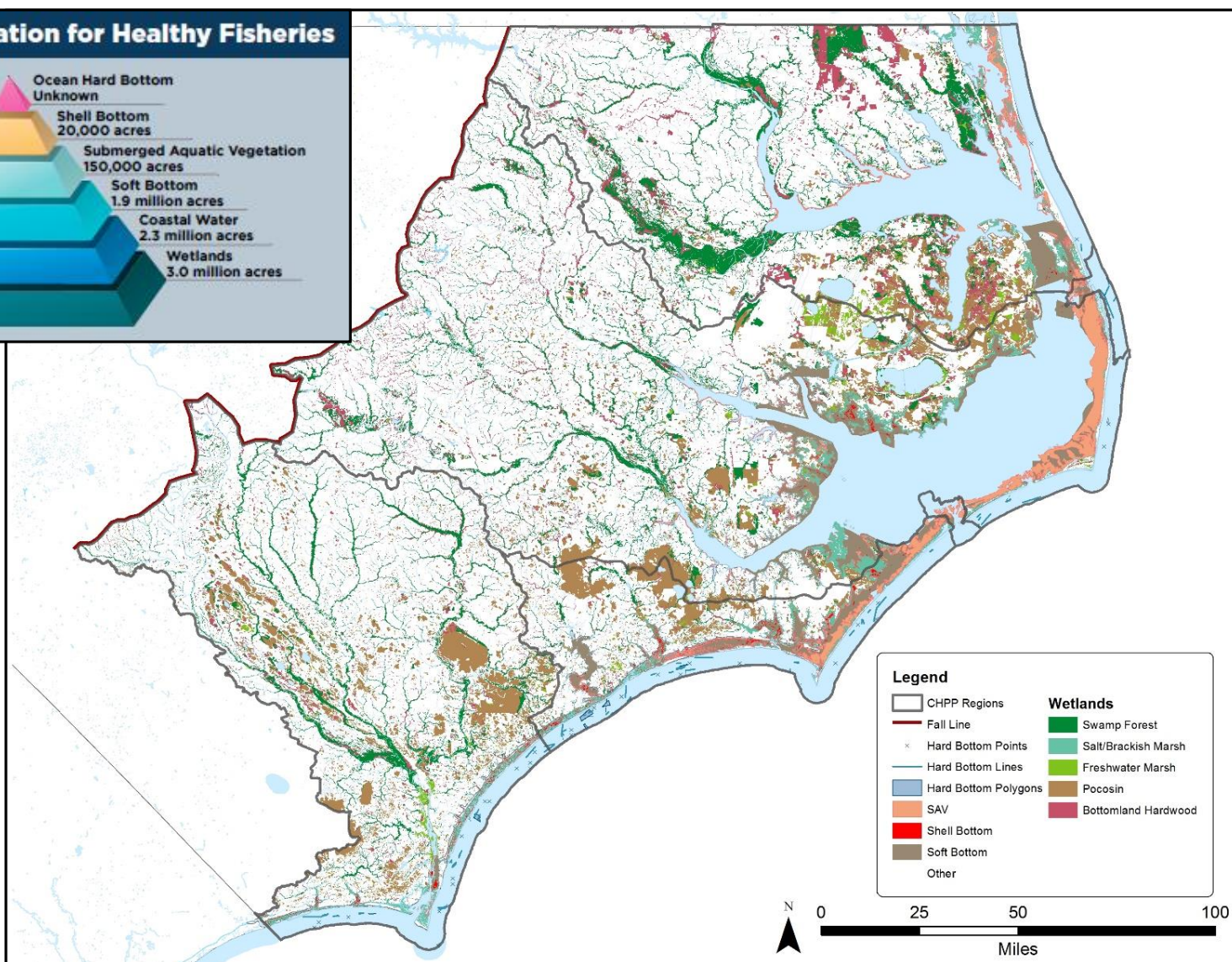
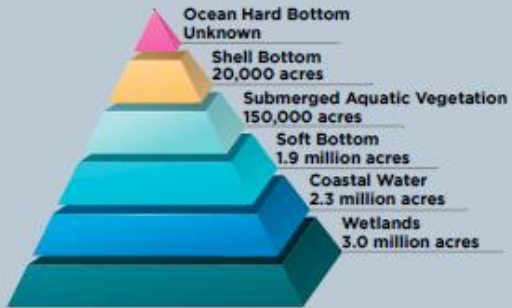


Goals

1. Improve effectiveness of existing rules and programs protecting coastal fish habitats.
2. Identify and delineate strategic habitat areas.
3. Enhance and protect habitats from adverse physical impacts.
4. Enhance and protect water quality.



The Foundation for Healthy Fisheries



Water Column



Submerged Aquatic Vegetation



Shell Bottom



Wetlands/Marsh



Hard Bottom



Soft Bottom

Potential Effects of Climate Change on Fish Habitat

Water Column

Increasing temperature, salinity, & currents → shifts in habitat & fish distributions
Increasing SLR & runoff → decreasing water quality → habitat loss

Submerged Aquatic Vegetation (SAV)

Increasing temperature → shifting species distribution
Increasing water levels & runoff → reduced water clarity → SAV loss
Increasing ocean inflow from barrier island breaches → increasing salinity & wave energy → shifting distribution

Shell Bottom and Ocean Hard Bottom

Increasing pH → decalcification of shell
Increasing salinity, temperature, & SLR → changing habitat & fish distribution

Wetlands

Increasing SLR → increasing inundation & shoreline erosion → wetland loss



Healthy Fish Habitat Enhances Coastal Resiliency

Water Column

Clean water for swimming, fishing, and boating; sustains fisheries, allows survival and expansion of SAV and shell bottom

\$2 billion/ year – commercial and recreational fisheries

Submerged Aquatic Vegetation (SAV)

Bind sediment, stabilizes shoreline, improving water quality, sequester carbon dioxide, release oxygen, forage and refuge for spotted sea trout, red drum, blue crabs, scallops

\$ 7,700/ac/yr – ecosystem services value

Shell Bottom

Shoreline erosion control, improves water quality, provides an alternative structure for fish to offset wetland loss

\$2,200-40,200/ac/yr – ecosystem services value

Wetlands

Storm protection, erosion control, dampen flood water effects, filter pollutants, sequester carbon dioxide, juvenile fish habitat

\$25.6 billion/yr – storm protection value



Priority Habitat Issues and Implementation Actions

Oyster Restoration



Living Shorelines



Department of Environmental Quality



Developing Metrics for Monitoring and Assessment



Sedimentation



SAV Mapping and Ground-truthing

