# New Jersey Conservation Focal Areas

Overview

The identification of **Conservation Focal Areas** is one of two main components of New Jersey's revision of the **State Wildlife Action Plan** (http://www.nj.gov/dep/fgw/ensp/waphome.htm) that aims to identify and address the highest priorities of NJ's fish and wildlife resources. The existing plan's focus will be narrowed by establishing and prioritizing focal species, identifying the areas that provide good conservation opportunities and then target the greatest threats to those species and habitats. Implementable conservation actions will then be linked to those threats, creating a blueprint for conservation of NJ's wildlife. Conservation Focal Areas represent the second of a two-part approach to identifying threats to New Jersey's Species of Greatest Conservation Need (SGCN), as well as to develop actions which will address these threats. In addition to identifying "Focal Species" (a priority subset of SGCN), specific geographic areas of NJ's landscape are recognized as presenting greater opportunities for effective conservation action. Conservation Focal Areas are where the conservation community can undertake actions to improve the conditions not only of the focal species but of a wider set of species relying on the same habitats.

Objectives

- Provide a data-driven approach for geographically focusing conservation action within New Jersey's Landscape Regions that incorporates metrics of **landscape ecological condition**, existing **conservation infrastructure**, existing **fish & wildlife habitats**, **biodiversity**, and **negative human influences**.
- Incorporate a **regional perspective/context** that addresses ecosystems of importance to the **Northeast Region** that are found in New Jersey.
- Emphasize **riparian corridors** that serve to **connect** larger tracts of habitat in an otherwise fragmented landscape.

Next Steps

Identify the threats in each Conservation Focal Area and develop conservation actions that will guide the conservation community and land-use decision makers that are able to undertake actions to improve the conditions of New Jersey's highest priority fish and wildlife resources.
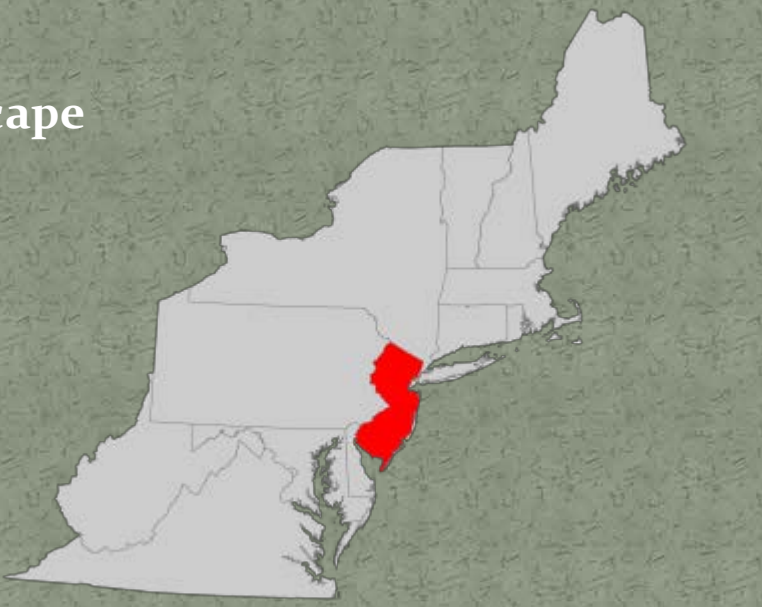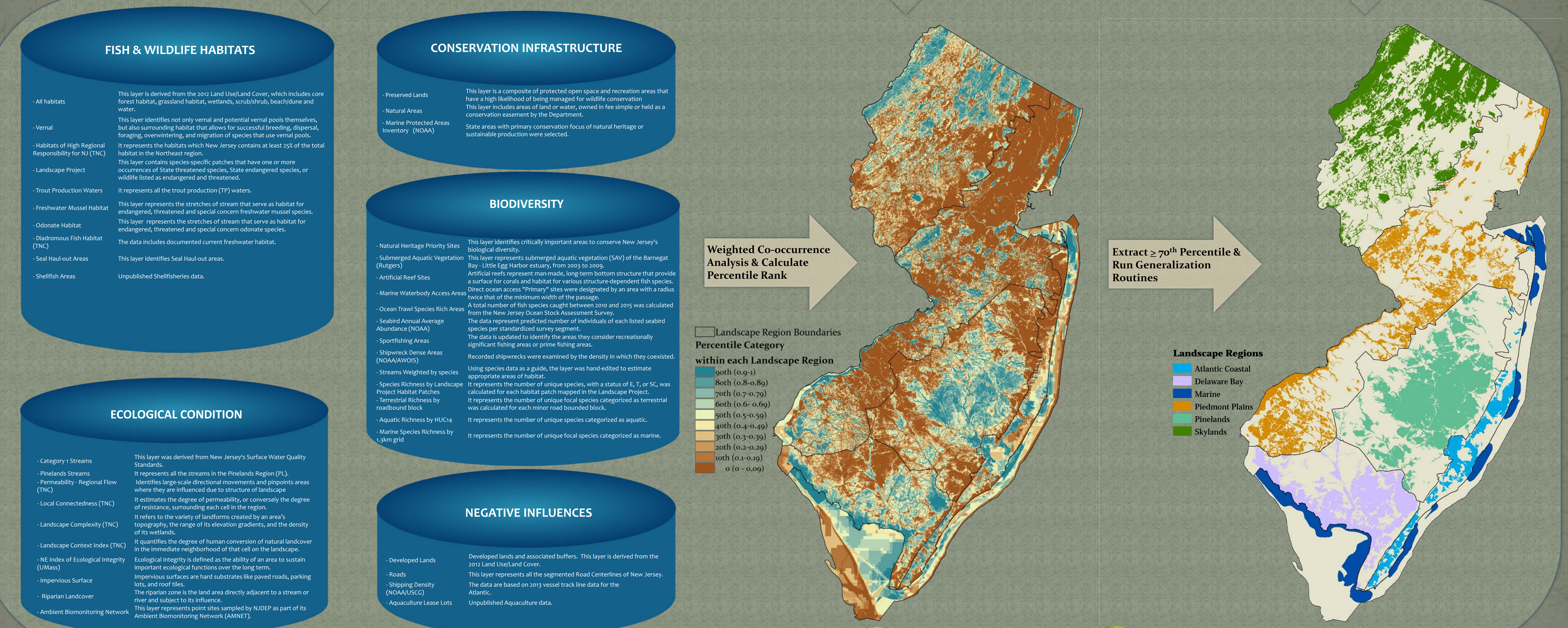
Process – Phase I

- Compiled ~40 inputs spanning terrestrial, freshwater aquatic and marine environments from state and regional sources
- Performed conversion, re-scaling and reclassification so that each input was standardized into 30' cells
- Categorized data into five geodatabases: Ecological Condition, Conservation Infrastructure, Fish & Wildlife Habitats, Biodiversity and Negative Influences
- Assigned relative importance (weights) to each input

Process – Phase II

- Performed weighted co-occurrence analysis that combines inputs to identify areas where several different qualities are present ("resource-rich" areas).
- Stratified by Landscape Regions (calculated percentile ranks relative to each region) in order to have even distribution of areas between regions

Process – Phase III

- Extracted percentile ≥ 70 in each Landscape Region
- Applied minimum size criteria to identify core areas
- Applied connectivity rules to select key connections between high value areas
- Ran basic generalization/simplification processes to smooth boundaries of areas
- Utilized RCOA ("Nature's Network") data on terrestrial and aquatic cores as guide to add in areas not captured

FISH & WILDLIFE HABITATS

- All habitats — This layer is derived from the 2012 Land Use/Land Cover, which includes core forest habitat, grassland habitat, wetlands, scrub/shrub, beach/dune and water.
- Vernal — This layer identifies not only vernal and potential vernal pools themselves, but also surrounding habitat that allows for successful breeding, dispersal, foraging, overwintering, and migration of species that use vernal pools.
- Habitats of High Regional Responsibility for NJ (TNC) — It represents the habitats which New Jersey contains at least 25% of the total habitat in the Northeast region.
- Landscape Project — This layer contains species-specific patches that have one or more occurrences of State threatened species, State endangered species, or wildlife listed as endangered and threatened.
- Trout Production Waters — It represents all the trout production (TP) waters.
- Freshwater Mussel Habitat — This layer represents the stretches of stream that serve as habitat for endangered, threatened and special concern freshwater mussel species.
- Odonate Habitat — This layer represents the stretches of stream that serve as habitat for endangered, threatened and special concern odonate species.
- Diadromous Fish Habitat (TNC) — This layer represents documented current freshwater habitat. The data includes documented current freshwater habitat.
- Seal Haul-out Areas — This layer identifies Seal Haul-out areas.
- Shellfish Areas — Unpublished Shellfisheries data.

CONSERVATION INFRASTRUCTURE

- Preserved Lands — This layer is a composite of protected open space and recreation areas that have a high likelihood of being managed for wildlife conservation
- Natural Areas — This layer includes areas of land or water, owned in fee simple or held as a conservation easement by the Department.
- Marine Protected Areas Inventory (NOAA) — State areas with primary conservation focus of natural heritage or sustainable production were selected.

BIODIVERSITY

- Natural Heritage Priority Sites — This layer identifies critically important areas to conserve New Jersey's biological diversity.
- Submerged Aquatic Vegetation (Rutgers) — This layer represents submerged aquatic vegetation (SAV) of the Barnegat Bay - Little Egg Harbor estuary, from 2003 to 2009.
- Artificial Reef Sites — Artificial reefs represent man-made, long term bottom structure that provide a surface for corals and habitat for various structure-dependent fish species.
- Marine Waterbody Access Areas — Direct ocean access "Primary" sites were designated by an area with a radius twice that of the minimum width of the passage.
- Ocean Trawl Species Rich Areas — A total number of fish species caught between 2010 and 2015 was calculated from the New Jersey Ocean Stock Assessment Survey.
- Seabird Annual Average Abundance (NOAA) — The data represent predicted number of individuals of each listed seabird species per standardized survey segment.
- Sportfishing Areas — The data is updated to identify the areas they consider recreationally significant fishing areas or prime fishing areas.
- Shipwreck Dense Areas (NOAA/AWOIS) — Recorded shipwrecks were examined by the density in which they coexisted.
- Species Weighted by species — Using species data as a guide, the layer was hand-edited to estimate appropriate areas of habitat.
- Species Richness by Landscape Project Habitat Patches — It represents the number of unique species, with a status of E, T, or SC, was calculated for each habitat patch mapped in the Landscape Project.
- Terrestrial Richness by roadbound block — It represents the number of unique focal species categorized as terrestrial was calculated for each minor road bounded block.
- Aquatic Richness by HUC14 — It represents the number of unique species categorized as aquatic.
- Marine Species Richness by 1.3km grid — It represents the number of unique focal species categorized as marine.

ECOLOGICAL CONDITION

- Category 1 Streams — This layer was derived from New Jersey's Surface Water Quality Standards.
- Pinelands Streams — It represents all the streams in the Pinelands Region (PL).
- Permeability - Regional Flow (TNC) — Identifies large-scale directional movements and pinpoints areas where they are influenced due to structure of landscape
- Local Connectedness (TNC) — It estimates the degree of permeability, or conversely the degree of resistance, surrounding each cell in the region.
- Landscape Complexity (TNC) — It refers to the variety of landforms created by an area's topography, the range of its elevation gradients, and the density of its wetlands.
- Landscape Context Index (TNC) — It quantifies the degree of human conversion of natural landcover in the immediate neighborhood of that cell on the landscape.
- NE Index of Ecological Integrity (UMass) — Ecological integrity is defined as the ability of an area to sustain important ecological functions over the long term.
- Impervious Surface — Impervious surfaces are hard substrates like paved roads, parking lots, and roof tiles.
- Riparian Landcover — The riparian zone is the land area directly adjacent to a stream or river and subject to its influence.
- Ambient Biomonitoring Network — This layer represents point sites sampled by NJDEP as part of its Ambient Biomonitoring Network (AMNET).

NEGATIVE INFLUENCES

- Developed Lands — Developed lands and associated buffers. This layer is derived from the 2012 Land Use/Land Cover.
- Roads — This layer represents all the segmented Road Centerlines of New Jersey.
- Shipping Density (NOAA/USCG) — The data are based on 2013 vessel track line data for the Atlantic.
- Aquaculture Lease Lots — Unpublished Aquaculture data.

Weighted Co-occurrence Analysis & Calculate Percentile Rank

Extract ≥ 70th Percentile & Run Generalization Routines

☐ Landscape Region Boundaries

Percentile Category within each Landscape Region

- 90th (0.9-1)
- 80th (0.8-0.89)
- 70th (0.7-0.79)
- 60th (0.6- 0.69)
- 50th (0.5-0.59)
- 40th (0.4-0.49)
- 30th (0.3-0.39)
- 20th (0.2-0.29)
- 10th (0.1-0.19)
- 0 (0 - 0.09)

Landscape Regions

- Atlantic Coastal
- Delaware Bay
- Marine
- Piedmont Plains
- Pinelands
- Skylands

Regional Conservation Focal Area Insets

Piedmont-Plains CFAs
- Arthur Kill Watershed
- Lower Hudson River
- Lower Inner Coastal Plain Delaware River
- Lower Raritan Watershed
- Millstone and South Branch Raritan Rivers
- Naval Weapons Station Earle
- Palisades Cliffs
- Passaic and Hackensack Rivers
- Piedmont Delaware River
- Shark and Navesink Rivers Watershed
- Sourlands
- Upper Inner Coastal Plain Delaware River
- Upper Maurice River Watershed

Pinelands CFAs
- Core Pinelands Area
- Great Egg Harbor Watershed
- Northern Pinelands Fringe
- Pinelands Federal Military Facilities
- Upper Inner Coastal Plain Delaware River
- Upper Maurice River Watershed

Atlantic Coastal CFAs
- Cape May Peninsula
- Great Bay Region
- Greater Atlantic City Coastal Bays
- Greater Barnegat Bay
- Sandy Hook
- Shark and Navesink Rivers Watershed

Delaware Bay CFAs
- Cape May Peninsula Mosaic
- Delaware Bayshore Forests
- Delaware Bayshore Marshes
- Lower Cohansey River Watershed
- Lower Great Egg Harbor Watershed
- Lower Maurice River Watershed

Skylands CFAs
- Glacial Lake Passaic Wetlands
- Highlands Core
- Hunterdon Plateau Delaware Valley Streams
- Kittatinny Ridge
- Kittatinny Slope Mosaic
- Kittatinny Valley Mosaic
- Northern Delaware River Tributaries
- Picatinny Military Installation
- Raritan and Passaic Rivers Headwaters
- Wallkill Headwaters Wetlands

Marine CFAs
- Asbury Park
- Barnegat Light
- Delaware Bay
- Jacques Cousteau
- Manasloking
- Ocean City
- Raritan Bay/Sandy Hook
- Sea Isle/Stone Harbor