

Land Cover for the Nation

What's Coming for Alaska

Nate Herold

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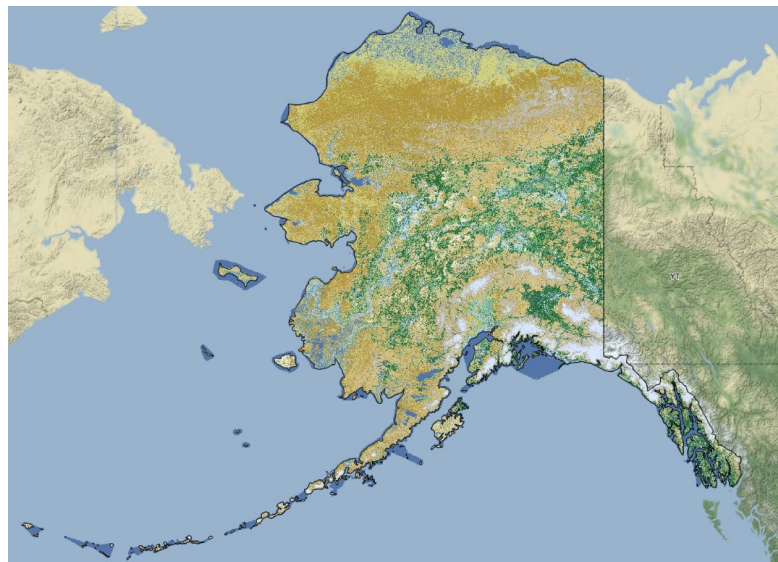
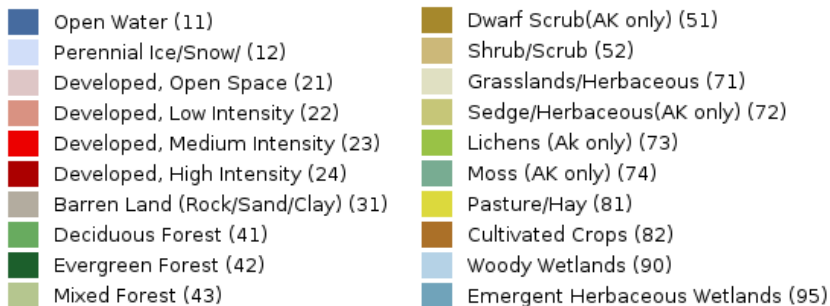
Coastal Change Analysis Program (C-CAP)

- FGDC National Geospatial Data Asset
- Coastal expression of the NLCD
- Regional Products at 30-meter
 - Updated every 5 years (1996 – 2016)
 - Back as far as 1975 in some locations
 - 2021 update planned (2023 release)



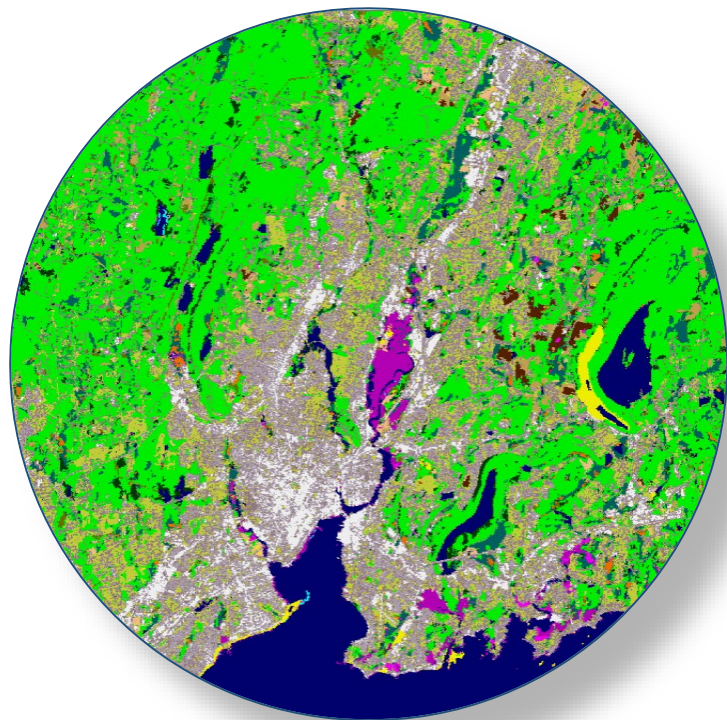
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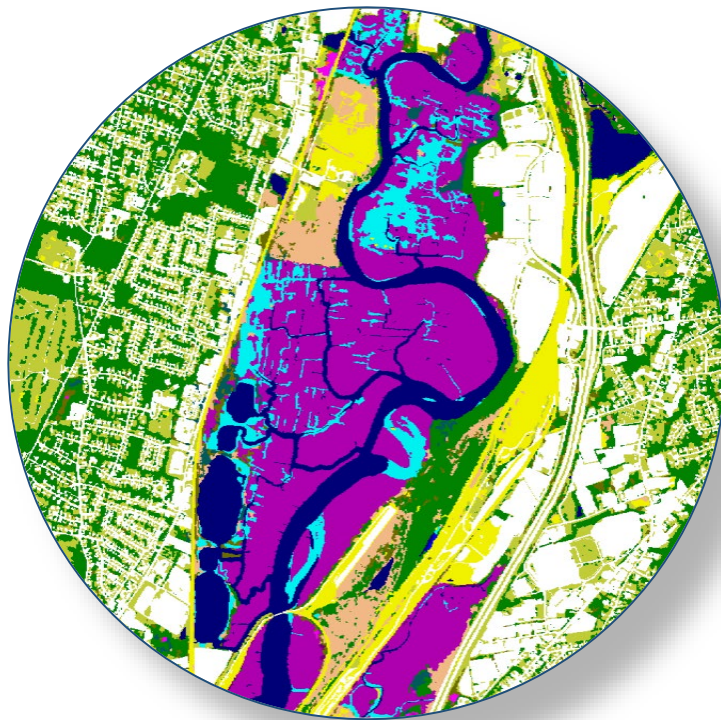
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- Regional Products at 30-meter
 - Updated every 5 years (1996 – 2016)
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 - 2021 update planned (2023 release)
- High Resolution Products at 1-meter
 - Historically expensive to produce
 - Faster, cheaper, better now possible
 - 2021 national buildout (by 2025)
 - Initial phase focus on impervious and hydraulically relevant features

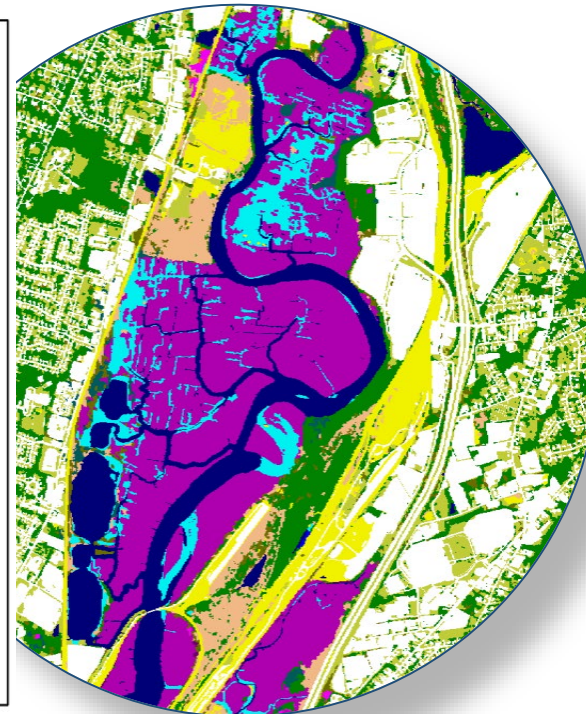


Comparison of Resolutions

REGIONAL (30 METER)

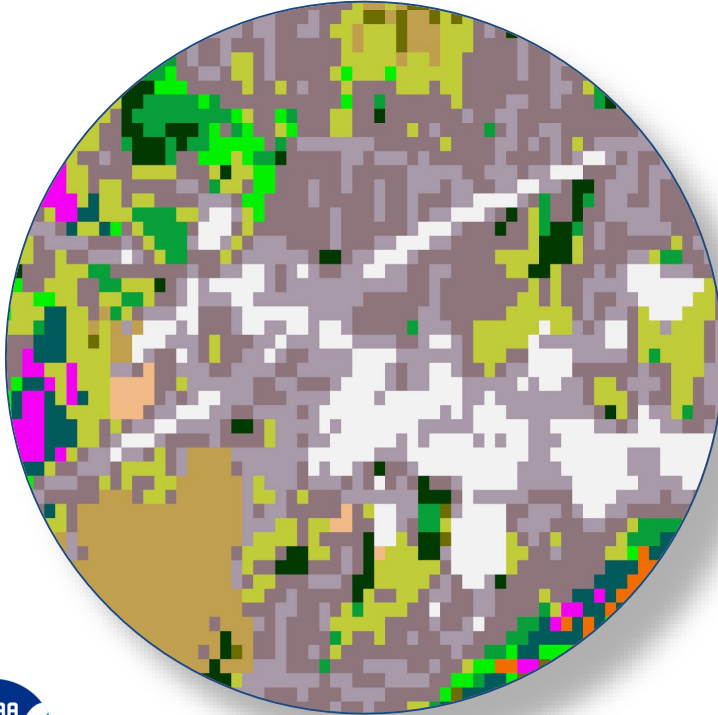


LOCAL (1 METER)



Comparison of Resolutions

REGIONAL (30 METER)

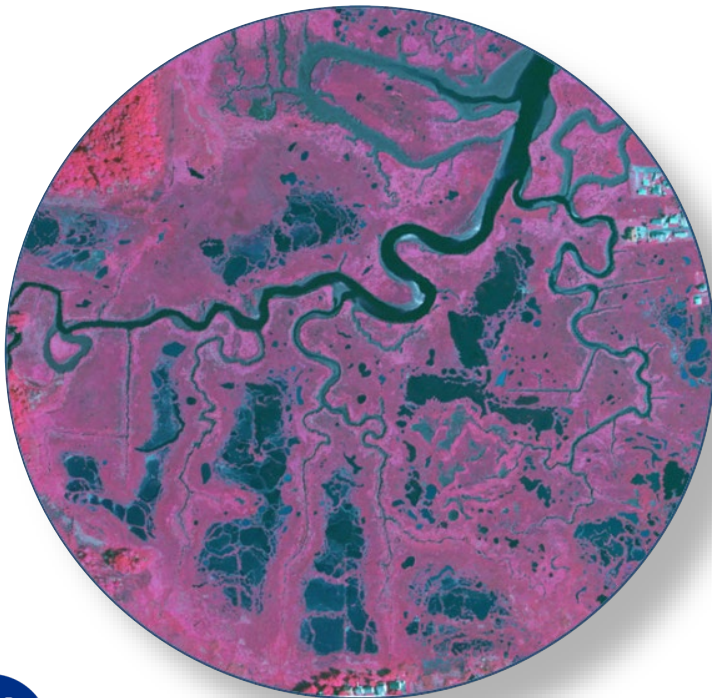


LOCAL (1 METER)

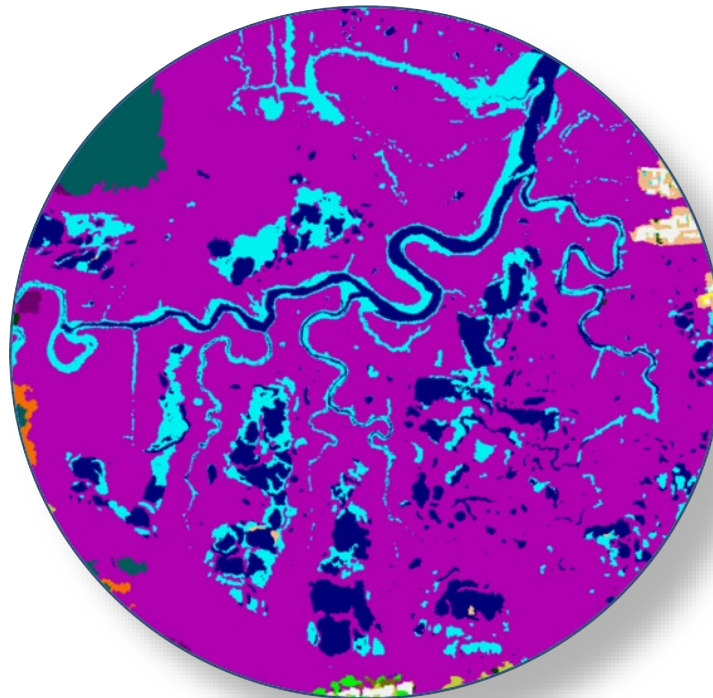


High Resolution Land Cover

ORTHOIMAGE



LAND COVER



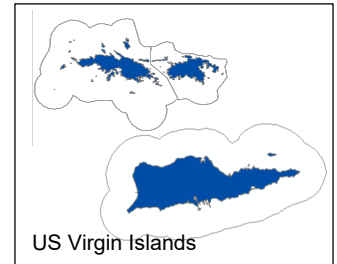
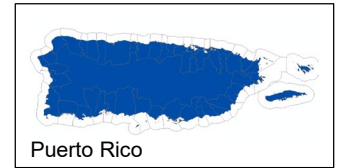
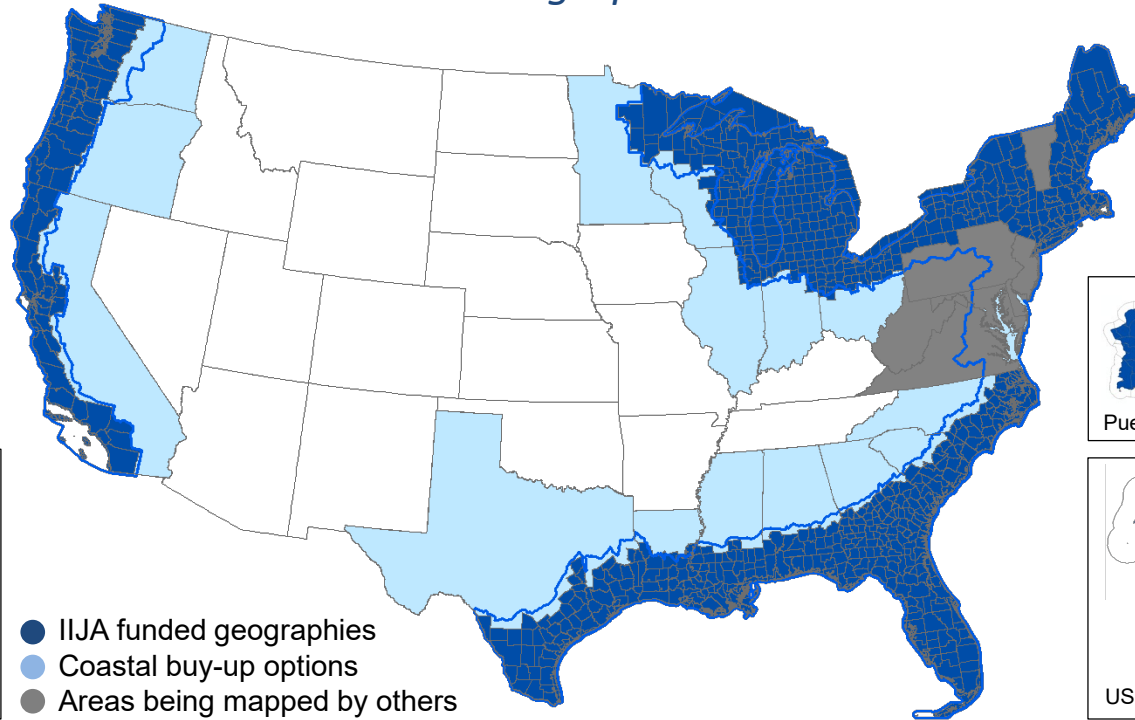
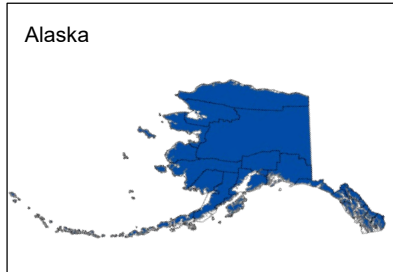
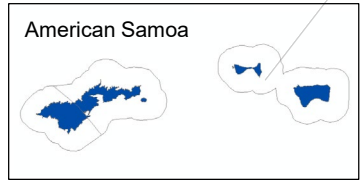
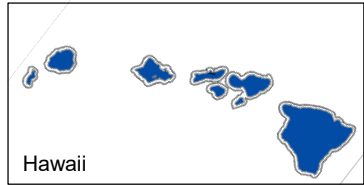
1-meter Land Cover Production Goals

- Phase 1 data products
 - CONUS Impervious, Canopy, & Water: Spring 2023
 - Alaska Impervious, Canopy, Water & Ice/Snow: Summer 2023
 - Pacific and Caribbean Updates: Fall 2023



Upcoming High Resolution Mapping

Phase 1 Geographies

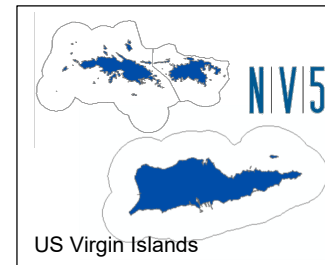
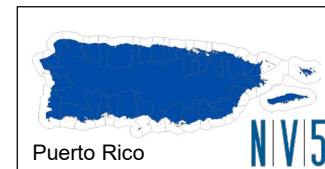
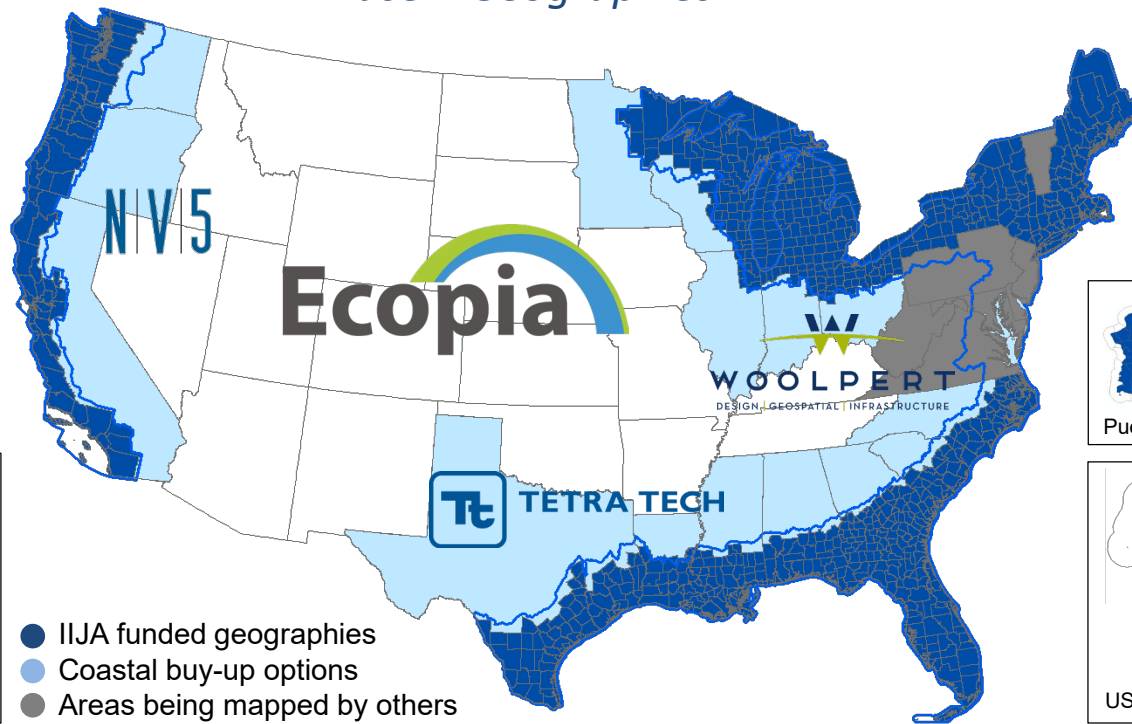
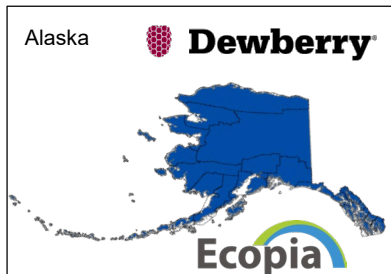
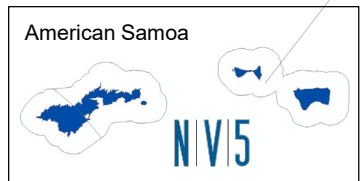


- IJA funded geographies
- Coastal buy-up options
- Areas being mapped by others



Upcoming High Resolution Mapping

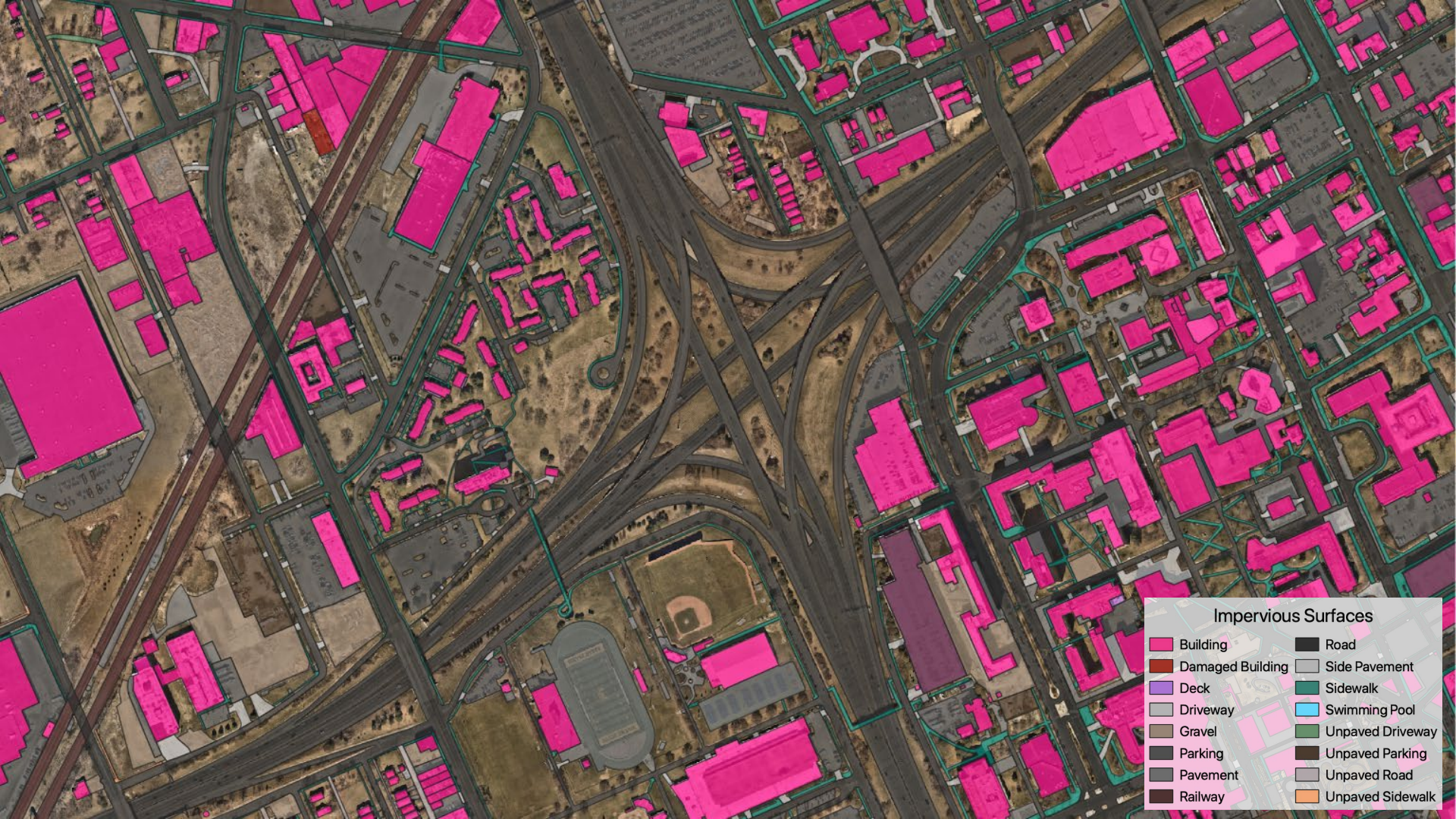
Phase 1 Geographies



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Impervious Surfaces

- | | |
|--|--|
|  Building |  Road |
|  Damaged Building |  Side Pavement |
|  Deck |  Sidewalk |
|  Driveway |  Swimming Pool |
|  Gravel |  Unpaved Driveway |
|  Parking |  Unpaved Parking |
|  Pavement |  Unpaved Road |
|  Railway |  Unpaved Sidewalk |







 Canopy



Water

1-meter Categories and Specifications

- Impervious – Single Category, inclusive of:
 - Road – greater than 15 feet wide and 100 feet long
 - Building – greater than 100 square feet (9 square meters, 0.002 acres)
 - Other – greater than 1,000 square feet (92 square meters, 0.02 acres)
- Canopy – greater than 10,000 square feet (0.2 acres)
 - High vegetation (Tree) – greater than 5 meters in height, minimum 7 feet wide
 - Low vegetation (Shrub) – less than 5 meters in height, minimum 7 feet wide
- Water – greater than 10,000 square feet (0.2 acres)
 - Note: generally inclusive of intertidal shore features
- Snow / Ice – greater than 10,000 square feet (0.2 acres)

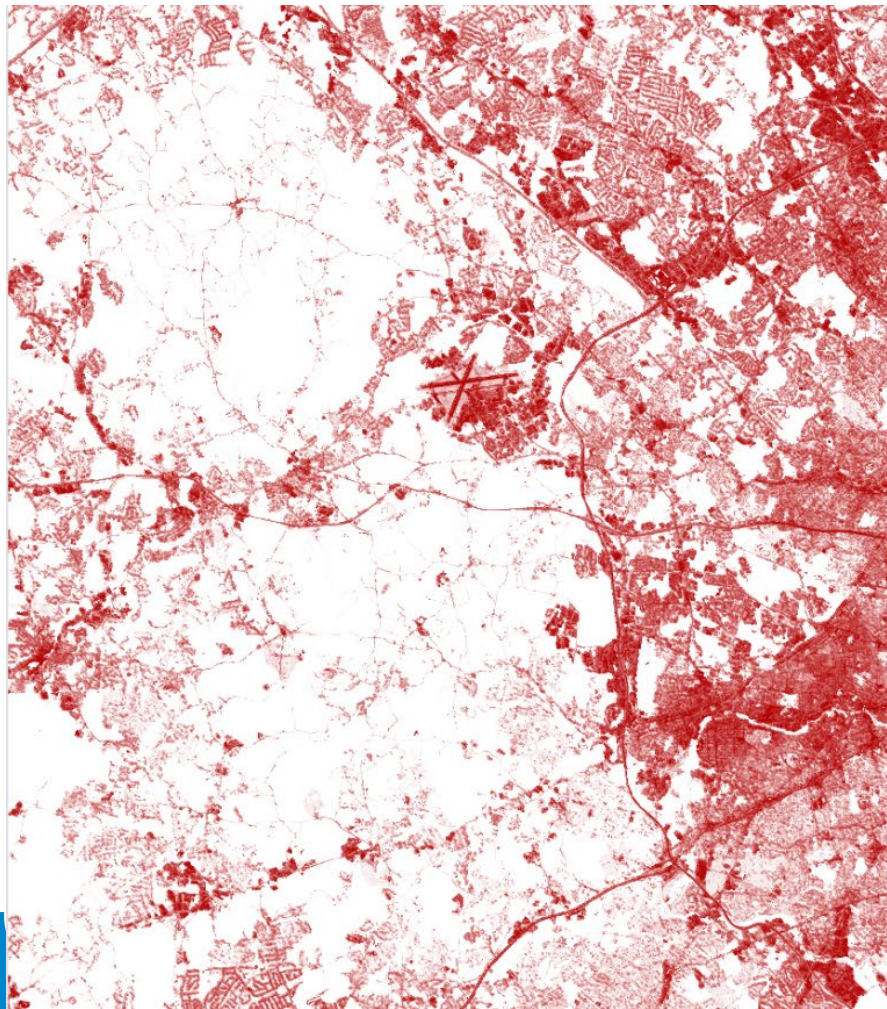


Immediate Impact at the National Level

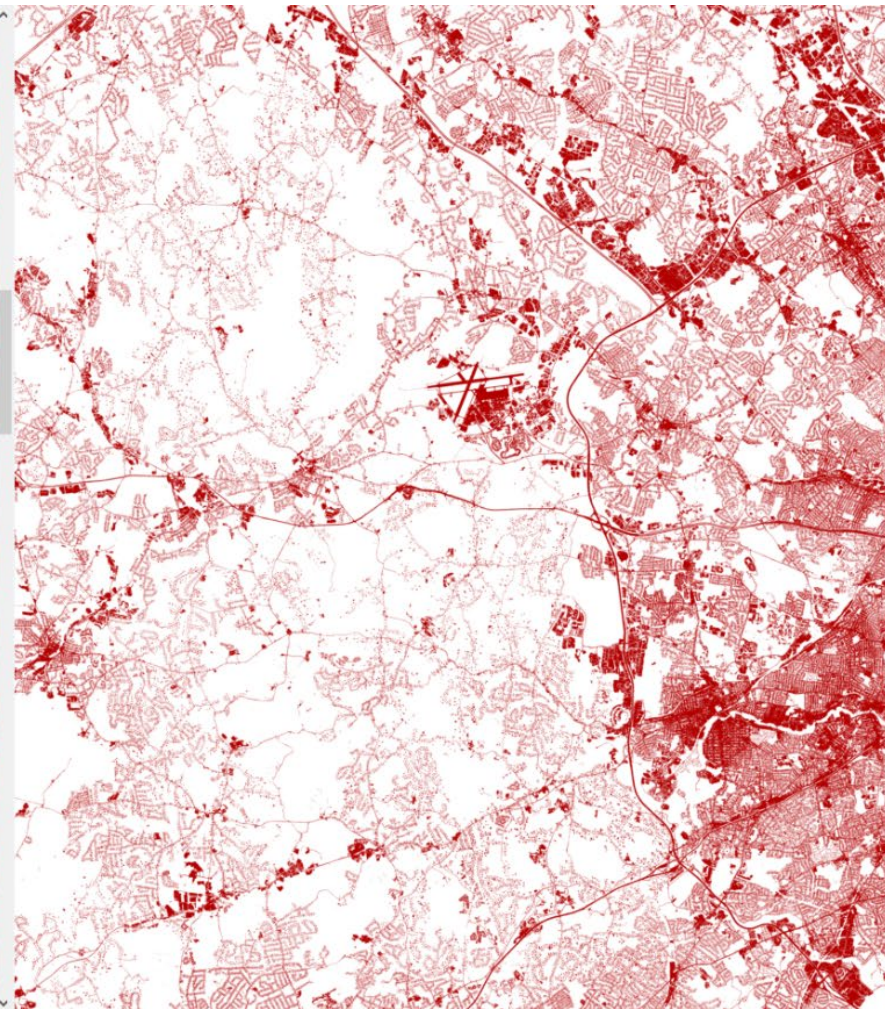
- Phase 1 data products to be resampled
 - From 1-meter to 30-meter
- Resampled data becomes the basis for an update NLCD
 - Percent Impervious
 - Percent Canopy
 - 2020 / 2021 land cover
- And a revamped NLCD timeline
 - Improved 2020 / 2021 30-meter land cover becomes new baseline
 - Change backwards to 2016, 2011, 2001 for improved time series



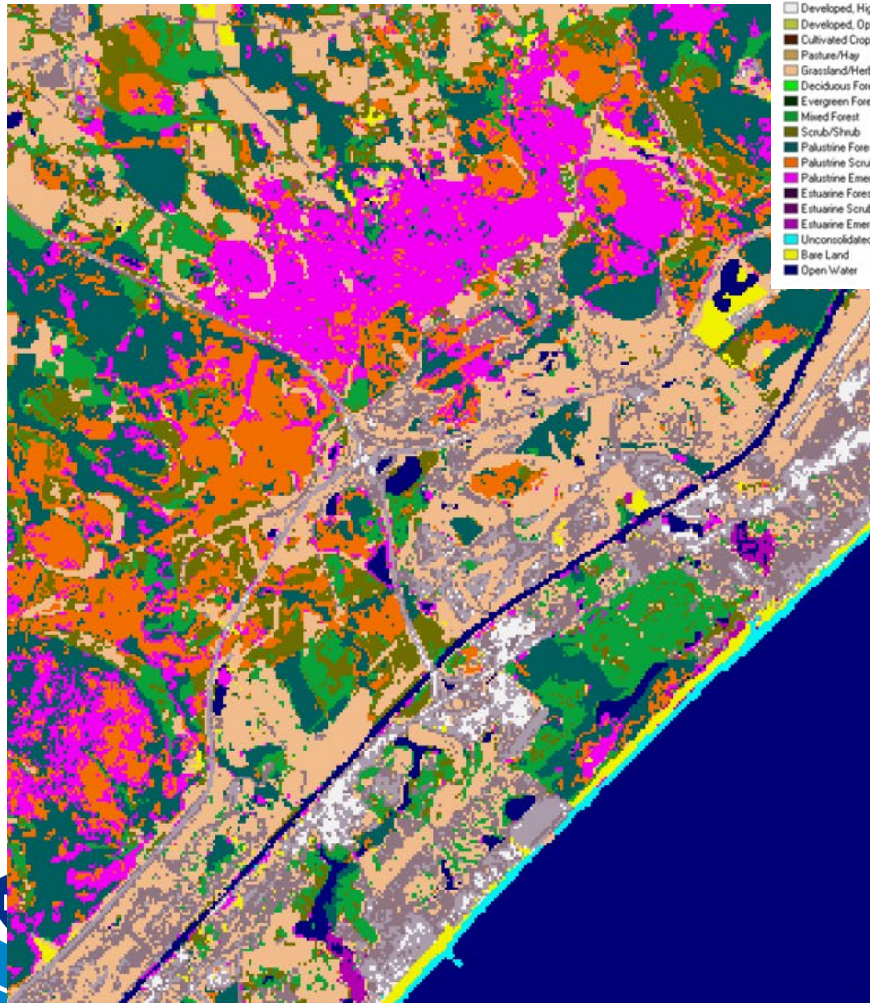
30-meter NLCD



30-meter derived BETA



30-meter C-CAP



- Unclassified
- Developed, High Intensity
- Developed, Open Space
- Cultivated Crops
- Pasture/Hay
- Grassland/Herbaceous
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Scrub/Shrub
- Palustrine Forested Wetland
- Palustrine Scrub/Shrub Wetland
- Palustrine Emergent Wetland
- Estuarine Forested Wetland
- Estuarine Scrub/Shrub Wetland
- Estuarine Emergent Wetland
- Unconsolidated Shore
- Bare Land
- Open Water

10-meter BETA



1-meter Land Cover Production Goals

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- Phase 2 data products (full C-CAP scheme land cover)
 - Immediate Pilots (Puget WA and Tampa FL): End of 2022
 - Secondary Pilots (Houston TX and Maine): Spring/Summer 2023



C-CAP Land Cover Categories

Impervious

Impervious under canopy

Open Space Developed

Cultivated

Pasture/Hay

Grassland

Upland Forest / Tree

Scrub/Shrub

Bare Land

Snow/Ice

Palustrine Forested Wetland

Palustrine Scrub/Shrub Wetland

Palustrine Emergent Wetland

Estuarine Forested Wetland

Estuarine Scrub/Shrub Wetland

Estuarine Emergent Wetland

Water

Palustrine Aquatic Bed

Estuarine Aquatic Bed



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 - Secondary Pilots (Houston TX and Maine): Spring/Summer 2023
- Phase 3 (land cover change)
 - Massachusetts, New Hampshire, Puget WA, Coos County OR, & Erie County OH
 - Connecticut, Rhode Island, New Orleans LA, Charleston SC



Applications of High Resolution Land Cover

- Flood modeling, Sea Level Rise, and risk
- Stormwater management and water quality
- Community Rating System (CRS)
- Land use planning and parcel analysis
- Urban heat risk and tree equity
- Carbon sequestration
- Wetland monitoring, assessment, and resilience
- Green infrastructure & nature based solutions
- And more!



● Buildings and Impervious
● under 4 feet of Sea Level Rise



Questions?

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coast.noaa.gov/digitalcoast/topics/coastal-land-cover.html

