# The BiOp and Beyond: Fixing Floodplain Management Problems

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National Wildlife Federation

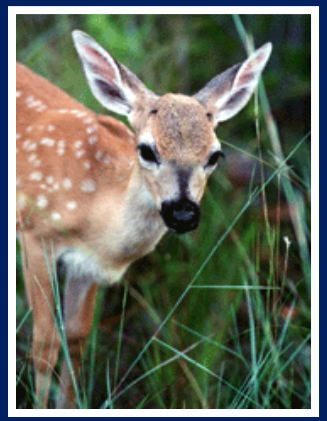
NORFMA
September 8, 2010

# Overview

- Why is it critical to get BiOp implementation right in PS?
- Where are the primary problem flood areas?
- How is BiOp implementation going?
- What can the state do?
  - Lunch table discussion

# ESA v. NFIP

- 1994: Florida Key Deer ESA Lawsuit
  - Moratorium on development;
  - Still in court



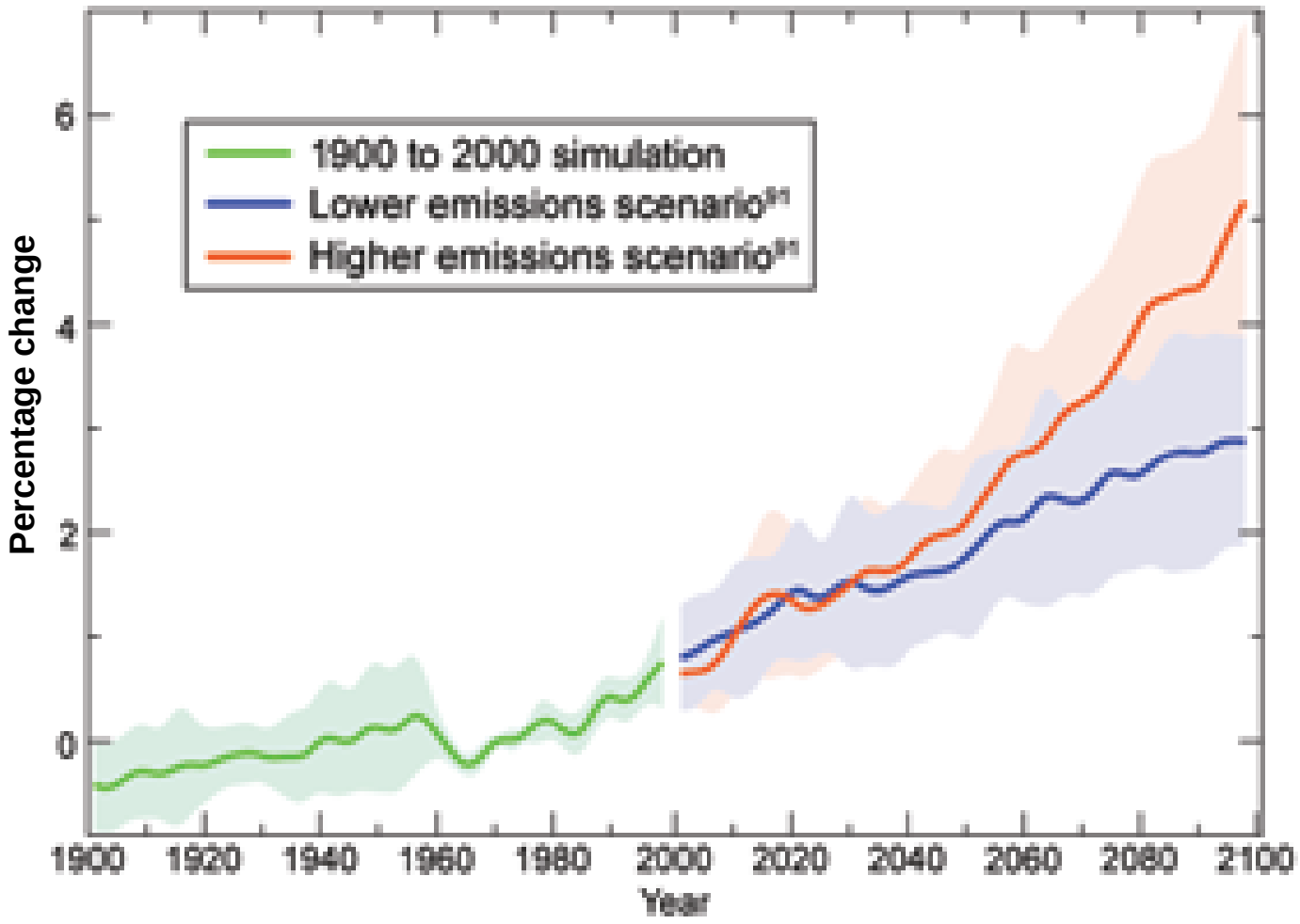
- 2004: Puget Sound ESA Lawsuit
  - FEMA must consult with NMFS re: potential impacts of NFIP on listed salmon in PS

# Floodplains = Habitat

- Puget Sound: Salmon, steelhead and Orca
- Florida: Key Deer
- Oregon: Salmon
- Missouri: Least tern, pallid sturgeon
- Chesapeake: Sea turtles, sturgeon, tiger beetle
- Florida: sea turtles
- California Delta: Delta smelt, salmon, steelhead
- California (Santa Clara River): Steelhead, Tidewater Goby, Western Snowy Plover
- Arizona: Jaguar, southwestern willow flycatcher, razorback sucker
- New Mexico: Rio Grande Silvery Minnow, Southwestern willow flycatcher


1
ESA NFIP Legal Actions
NWF Plaintiff
NWF Not Plaintiff
CANADA
MEXICO
GULF OF MEXICO
ATLANTIC OCEAN
PACIFIC OCEAN
Compiled by U.S. Geological Survey
2001
The National Atlas of the United States of America®
www.nationalatlas.gov

# Heaviest Precipitation Events Increasing Flood Risk Increasing

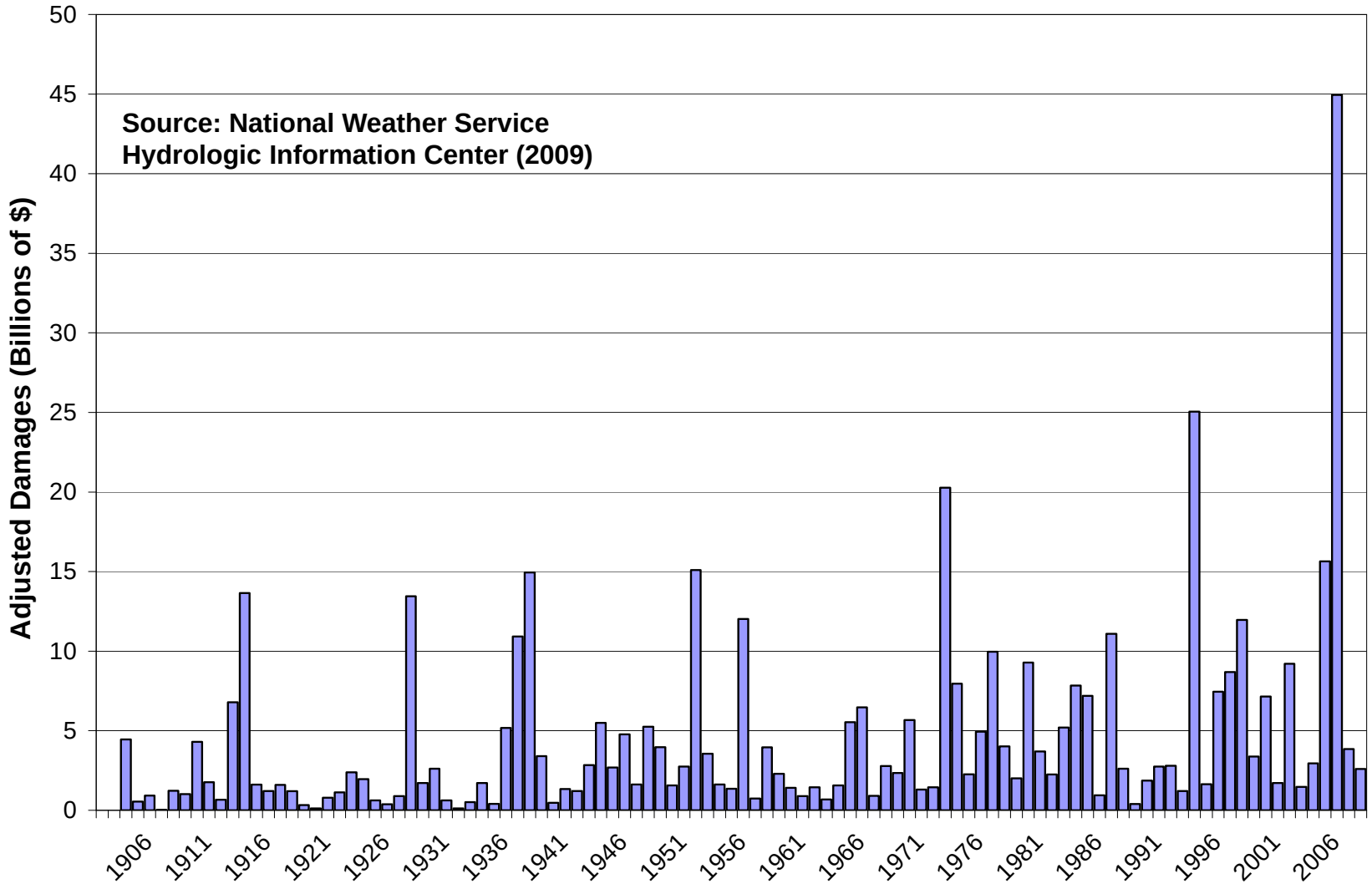



Projected changes in precipitation falling in the heaviest 5 percent of daily events.

Changes are relative to the 1960-1979 average.

Source: Global Climate Change Impacts in the United States. US Global Change Research Program, 2009.

# Annual Flood Damages are Increasing



# Implications for Washington

- Flood frequency will increase January-March in transient basins (CIG)
  - Puget Sound
  - Southwest Washington
  - Low elevations east of Cascades
- Flood risk increases steadily over time (CIG)
- 30% Flood Frequency increase in Skagit

# The Costs of Flooding

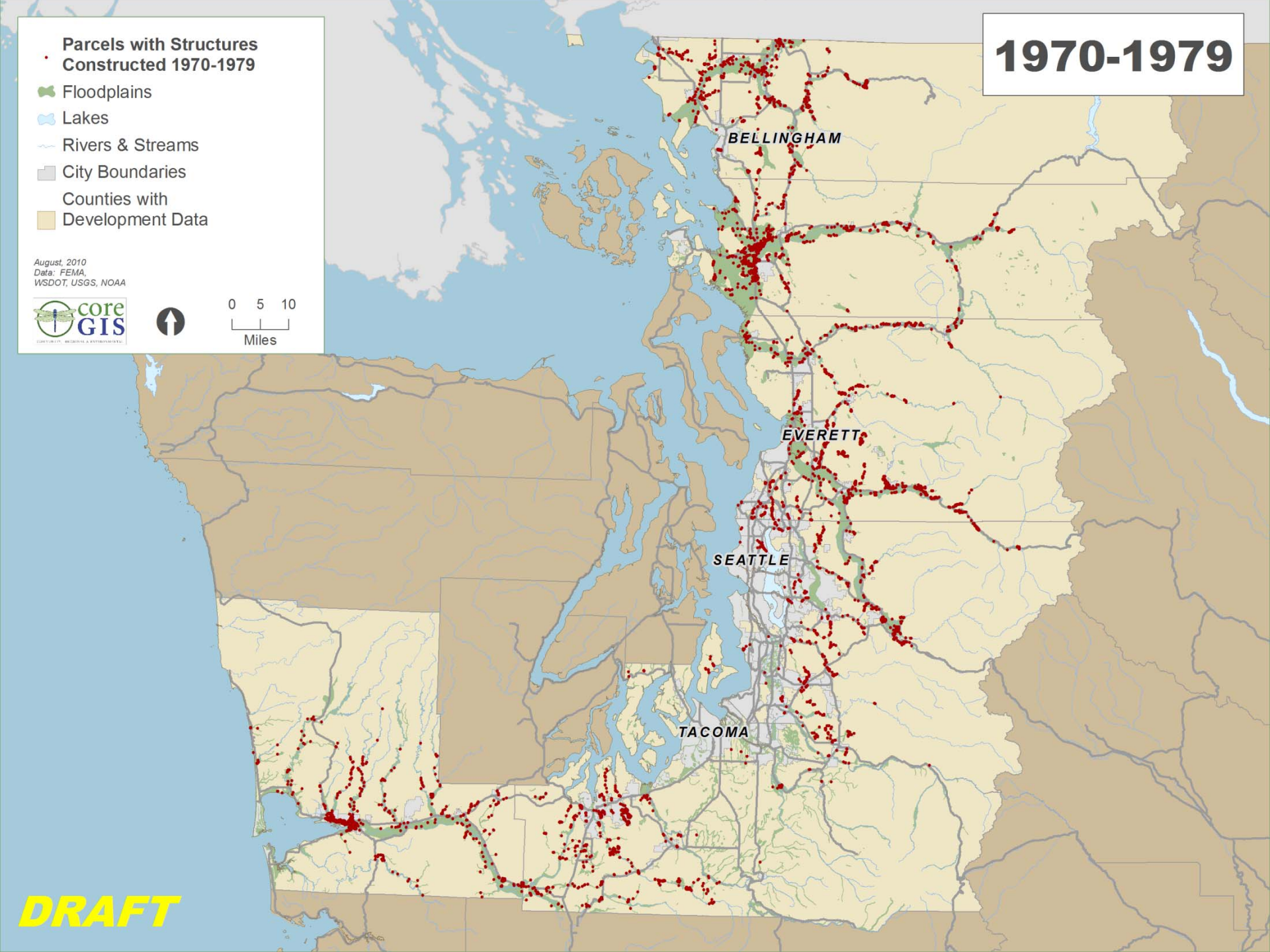
# The Statistics of Flooding

Since 1990:

- 13 flood disaster declarations in PS
  - January 2009 Floods: 23 PS rivers flooded; 4 record floods
- 42 flood-related deaths
- 700 homes flooded multiple times
- Over 900 cattle and farm animals killed
- Interstate 5 closed four times
- $860 million in flood losses

Interstate 5 Flood Damage
Chehalis, Dec. 2007
Photo: THE OREGONIAN/Bruce Ely


Floodplains
Lakes
Rivers & Streams
City Boundaries
Counties with Development Data
August, 2010
Data: FEMA, WSDOT, USGS, NOAA
core GIS
0 5 10
Miles
Overview
BELLINGHAM
EVERETT
SEATTLE
TACOMA
The Development of Floodplains
DRAFT


Parcels with Structures Constructed 1970-1979
Floodplains
Lakes
Rivers & Streams
City Boundaries
Counties with Development Data
August, 2010
Data: FEMA, WSDOT, USGS, NOAA
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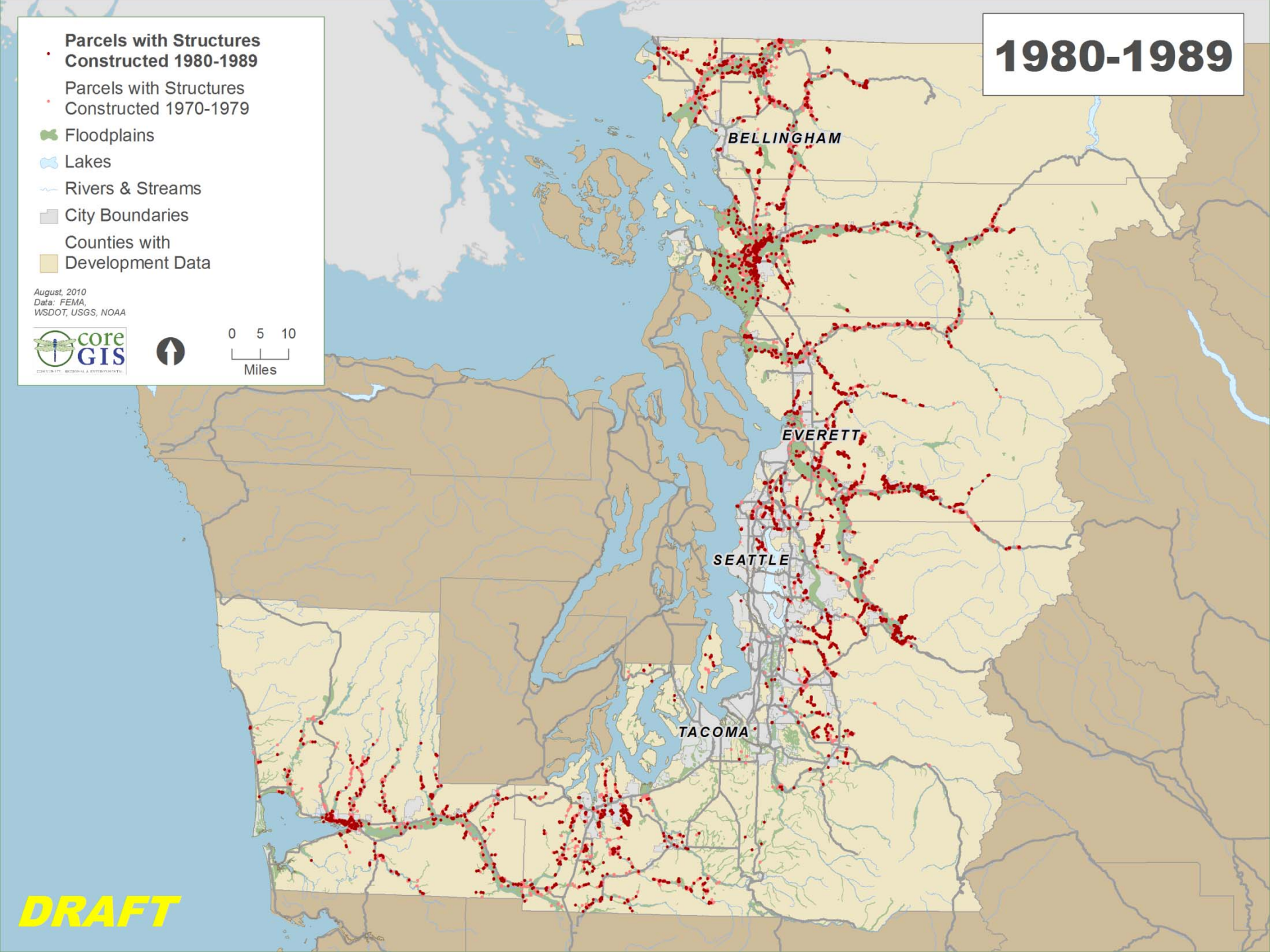
Miles
1970-1979
BELLINGHAM
EVERETT
SEATTLE
TACOMA
DRAFT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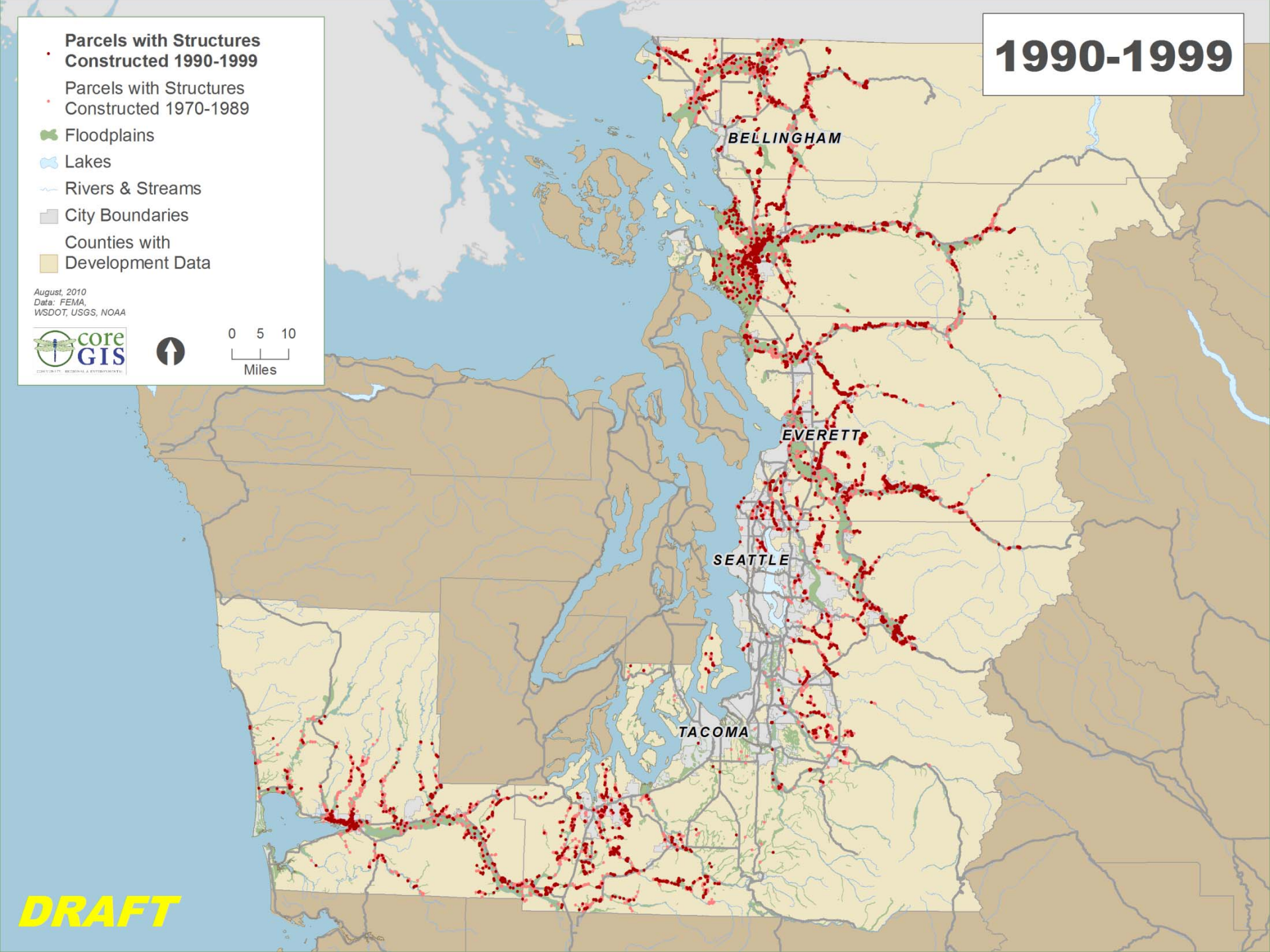
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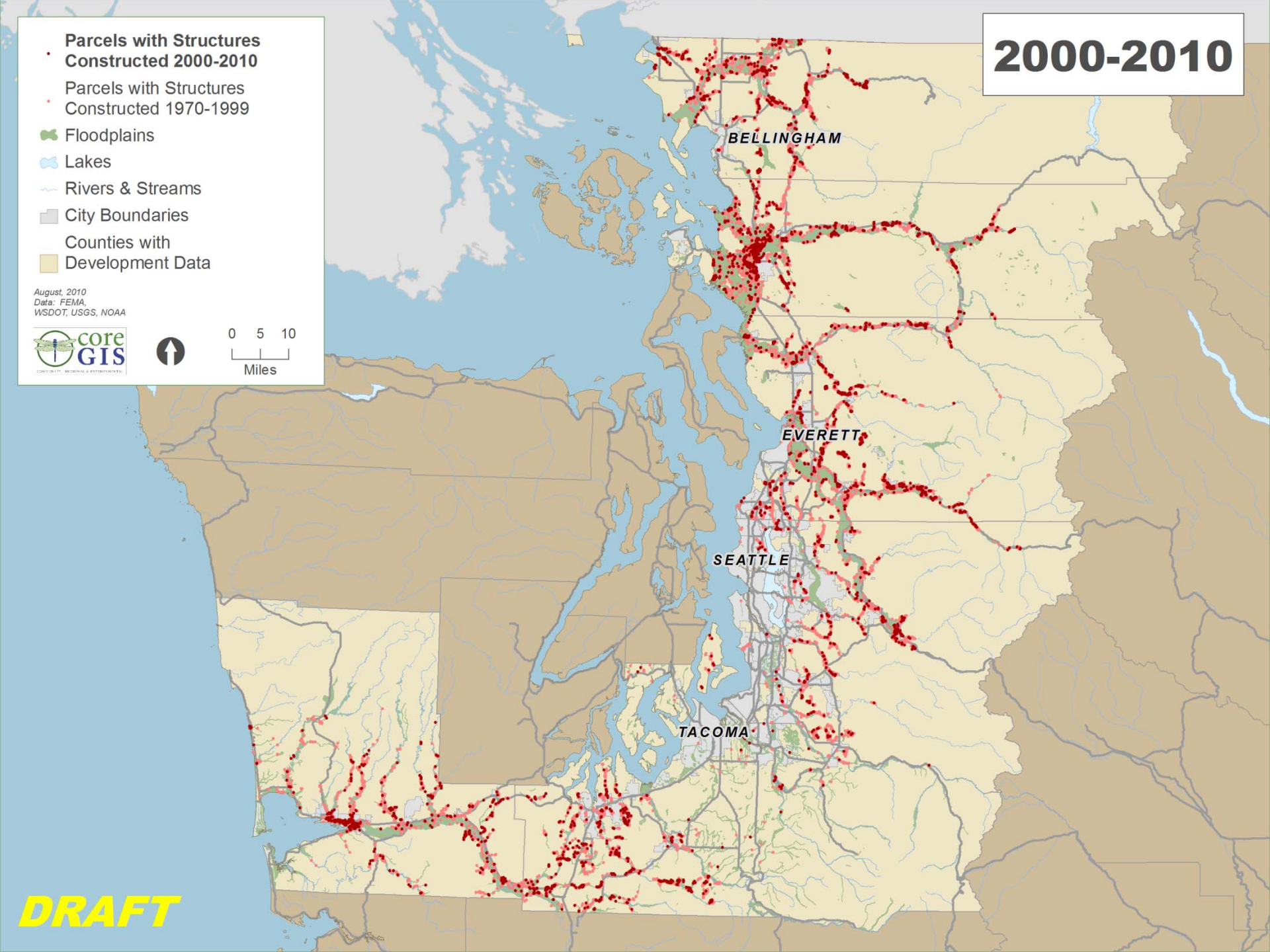
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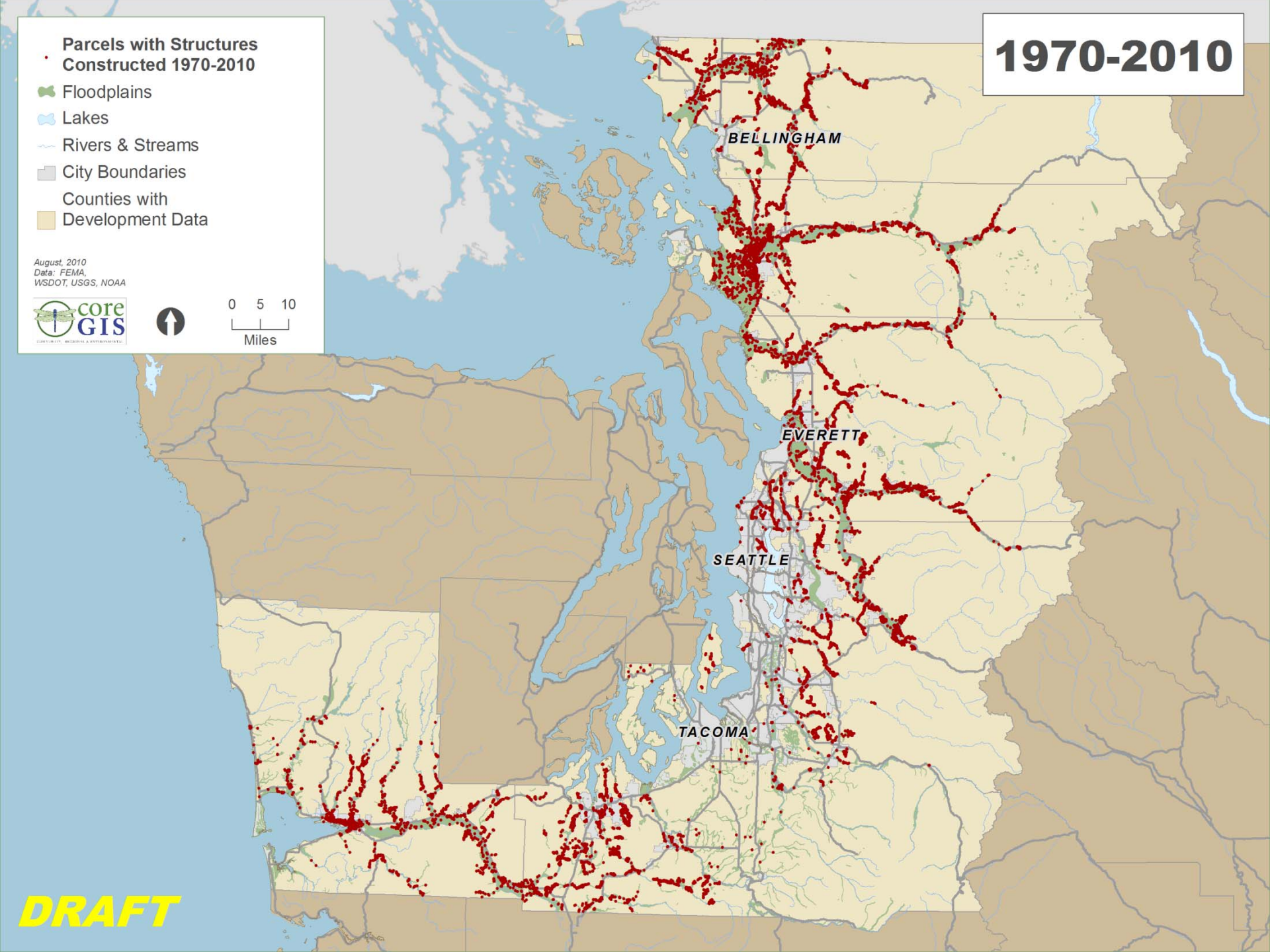
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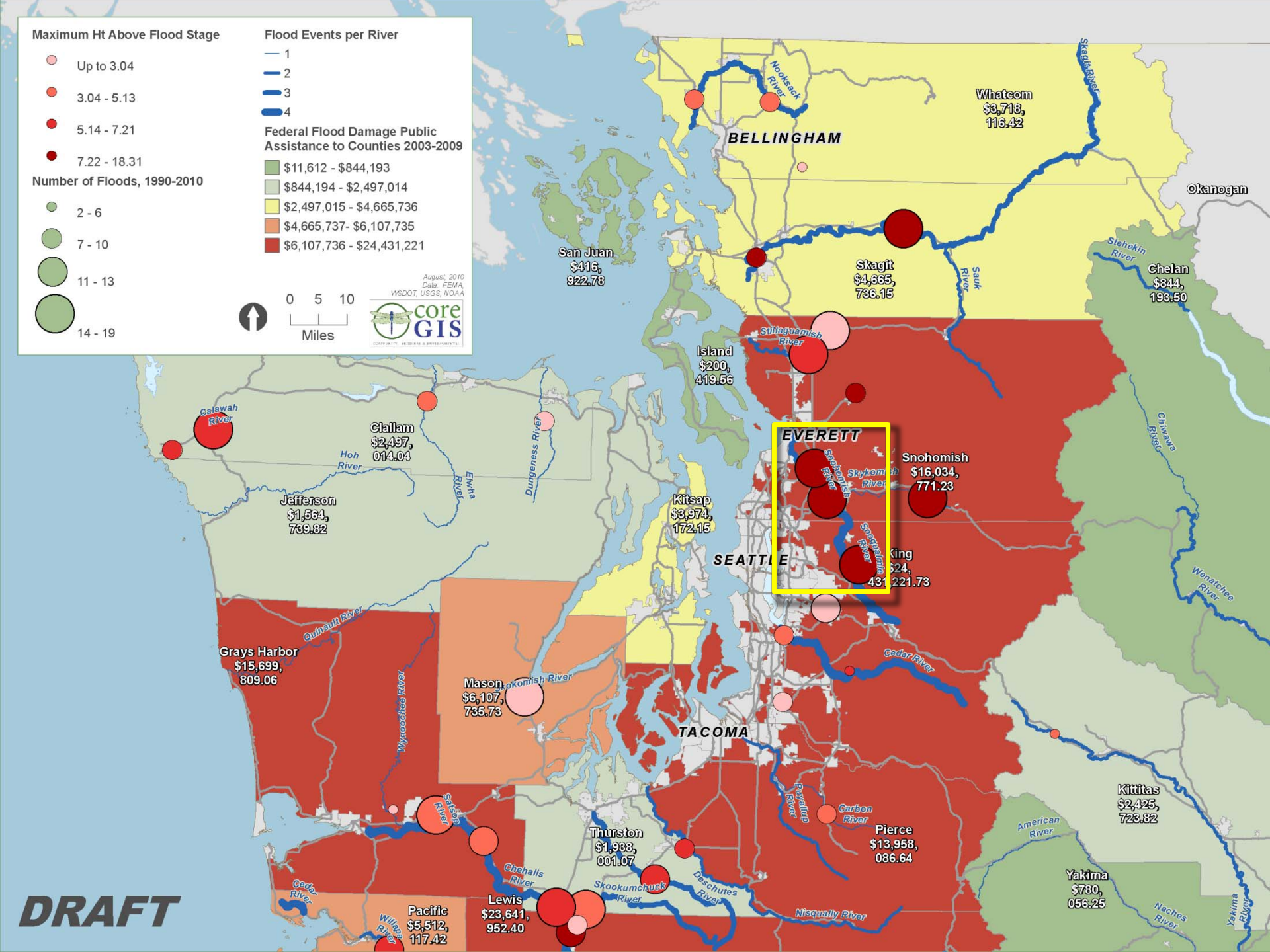
Maximum Ht Above Flood Stage
Up to 3.04
3.04 - 5.13
5.14 - 7.21
7.22 - 18.31
Number of Floods, 1990-2010
2 - 6
7 - 10
11 - 13
14 - 19
Flood Events per River
1
2
3
4
Federal Flood Damage Public Assistance to Counties 2003-2009
$11,612 - $844,193
$844,194 - $2,497,014
$2,497,015 - $4,665,736
$4,665,737- $6,107,735
$6,107,736 - $24,431,221
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0 5 10
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BELLINGHAM
Whatcom $3,718, 116.42
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Nooksack River
Skagit River
Stillaguamish River
Sauk River
Stehekin River
Chiwawa River
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Hoh River
Elwha River
Dungeness River
Quinault River
Wynoochee River
Satsop River
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Carbon River
American River
Naches River
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Willapa River
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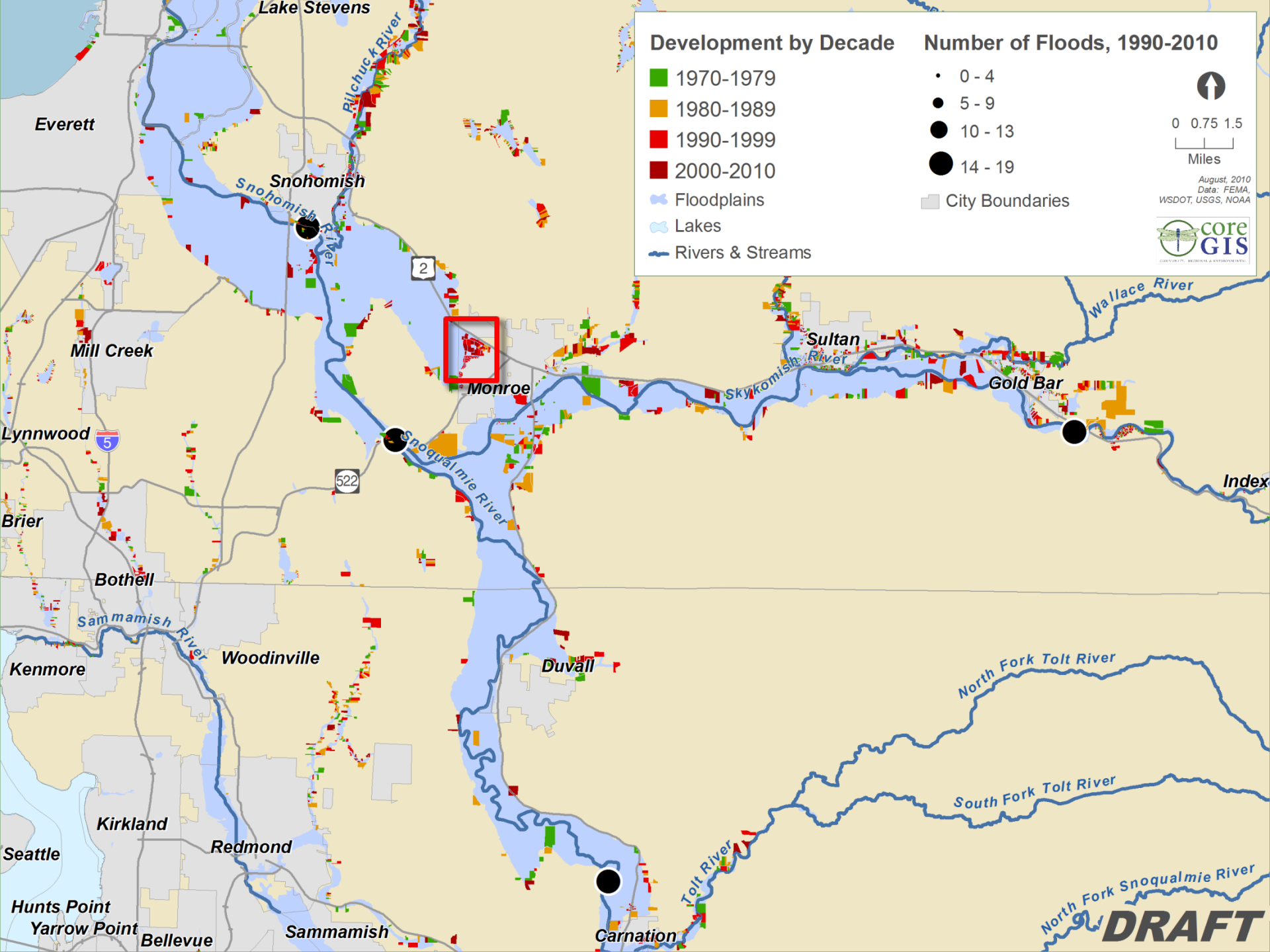
Development by Decade
1970-1979
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1990-1999
2000-2010
Floodplains
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Number of Floods, 1990-2010
0 - 4
5 - 9
10 - 13
14 - 19
City Boundaries
0 0.75 1.5
Miles
August, 2010
Data: FEMA, WSDOT, USGS, NOAA
core GIS
Lake Stevens
Everett
Snohomish
Pilchuck River
Snohomish River
Mill Creek
Monroe
Lynnwood
Brier
Bothell
Sammamish River
Kenmore
Woodinville
Duvall
Kirkland
Redmond
Seattle
Hunts Point
Yarrow Point
Bellevue
Sammamish
Carnation
Tolt River
North Fork Tolt River
South Fork Tolt River
North Fork Snoqualmie River
Snoqualmie River
Skykomish River
Sultan
Gold Bar
Wallace River
Index
2
5
522
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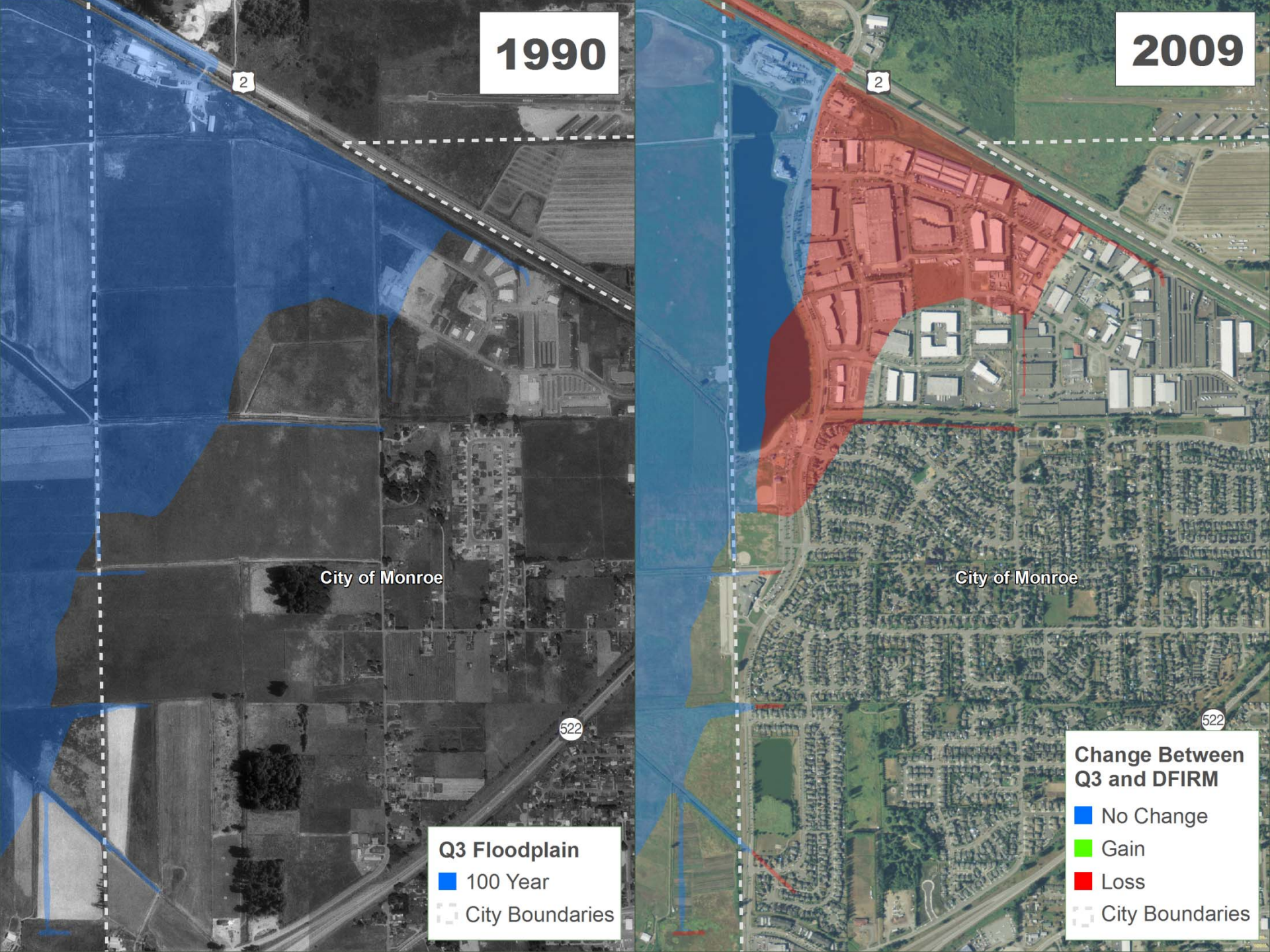
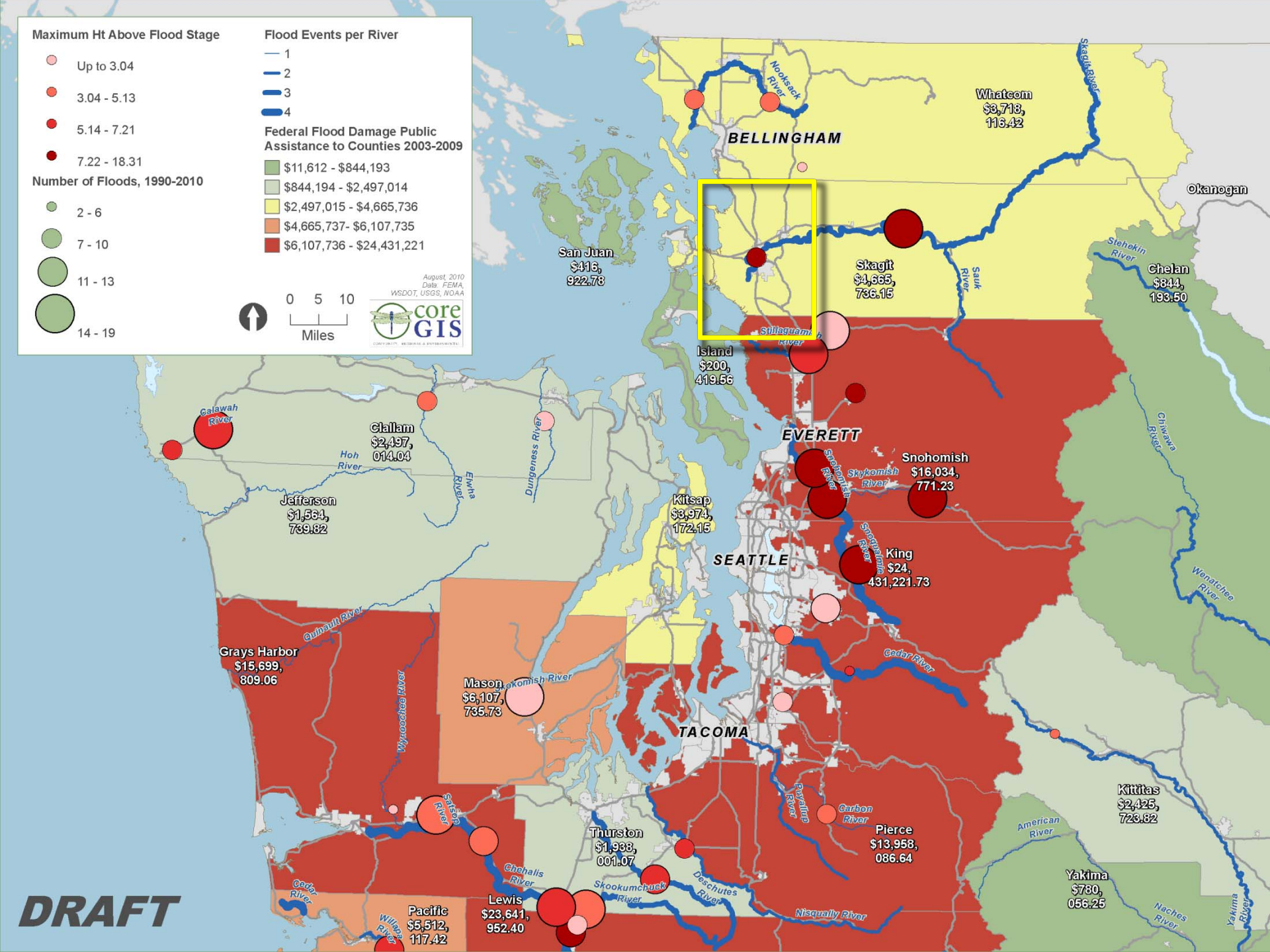

1990
2009
2
2
City of Monroe
City of Monroe
522
522
Q3 Floodplain
100 Year
City Boundaries
Change Between Q3 and DFIRM
No Change
Gain
Loss
City Boundaries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Elwha River
Hoh River
Calawah River
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Wynoochee River
Satsop River
Chehalis River
Cedar River
Skookumchuck River
Deschutes River
Nisqually River
Puyallup River
Carbon River
American River
Naches River
Yakima River
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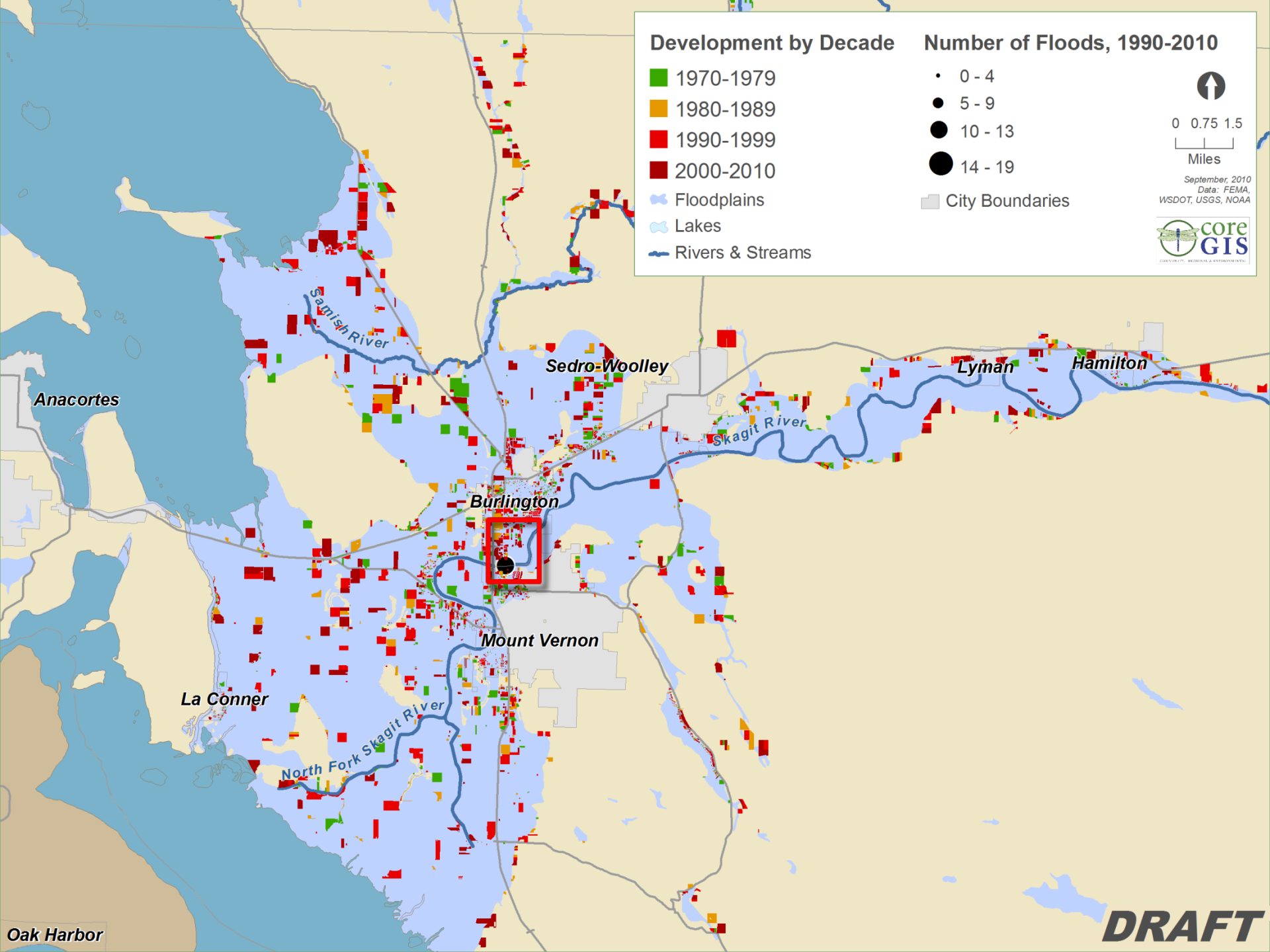
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Samish River
Sedro-Woolley
Lyman
Hamilton
Anacortes
Skagit River
Burlington
Mount Vernon
La Conner
North Fork Skagit River
Oak Harbor
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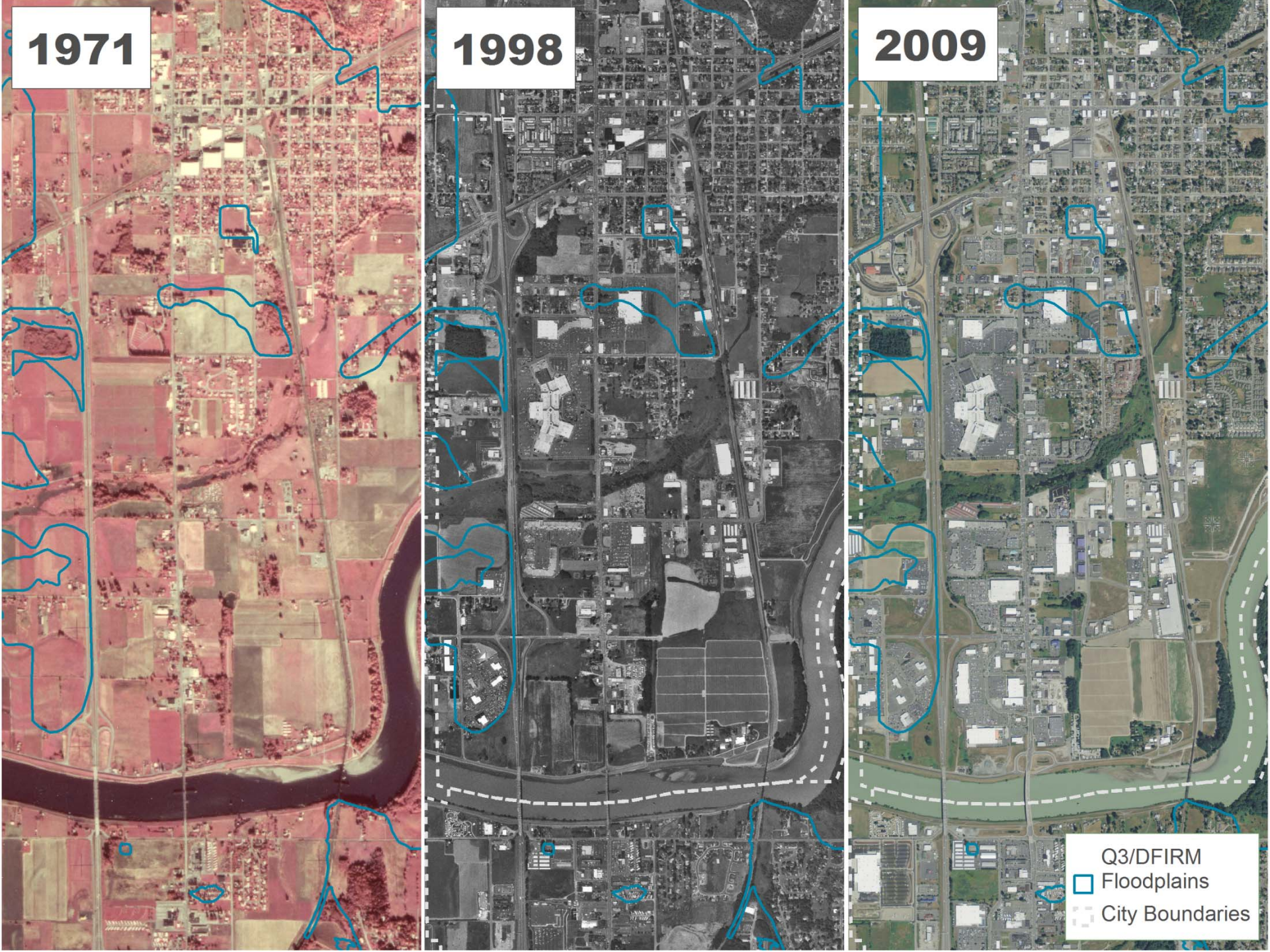
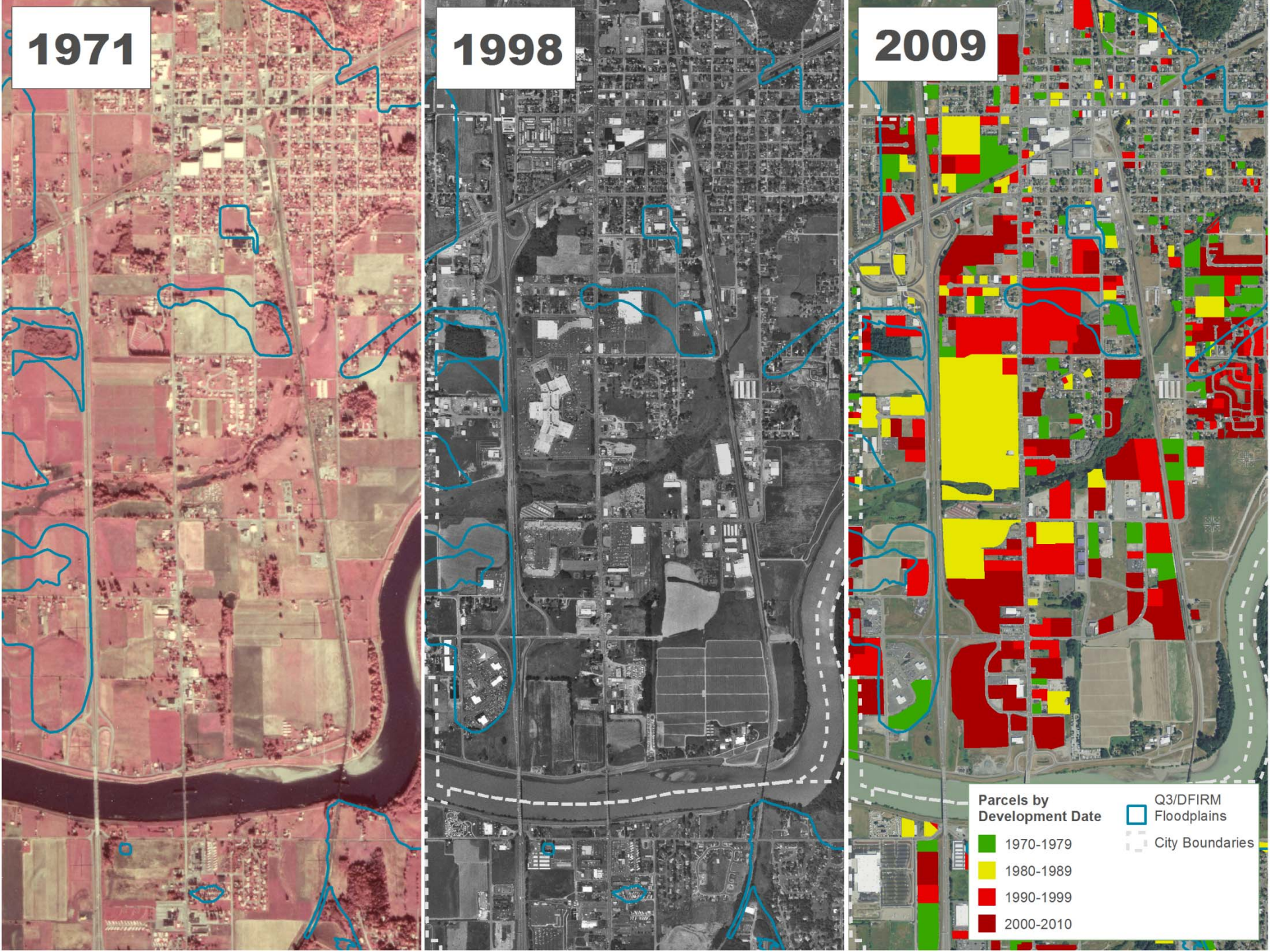

1971
1998
2009
Q3/DFIRM
Floodplains
City Boundaries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1998
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Parcels by Development Date
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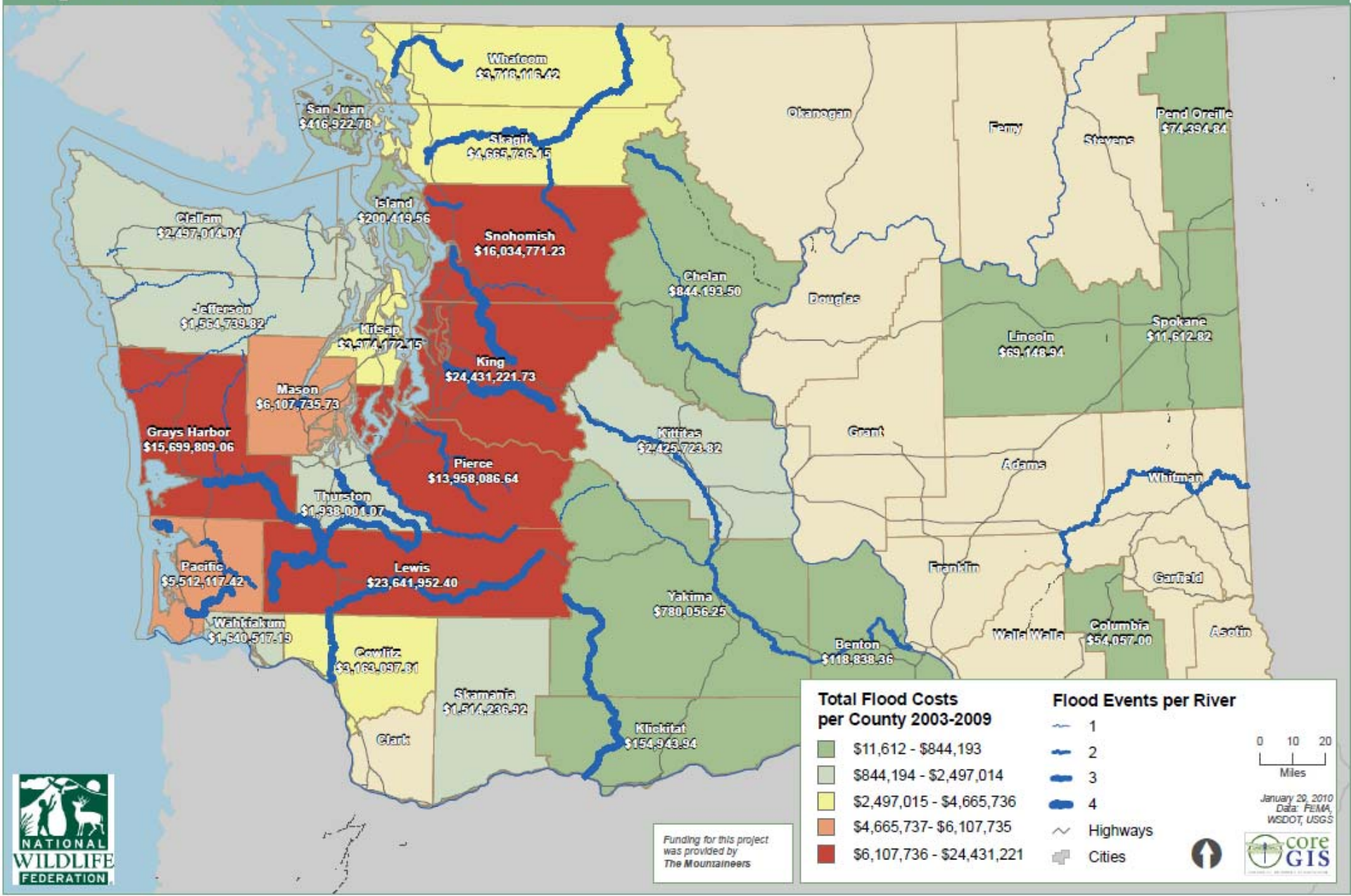
Q3/DFIRM Floodplains
City Boundaries

# Flood Payments by County and Flood Events by River, 2003 - 2009



# Sept. 2008 Biological Opinion
## National Marine Fisheries Service Found:

- NFIP jeopardizes existence of
  - 3 salmonid populations
    - PS Chinook salmon
    - PS steelhead
    - Hood Canal summer-run chum salmon
  - Southern Resident killer whale population
- Adversely modifies critical habitat for:
    - PS Chinook salmon
    - Hood Canal summer-run chum salmon
    - Southern Resident killer whale

# Reasonable and Prudent Alternatives (RPAs)

√ Notify participating PS communities
- Done

X Update Floodplain maps; change modeling methods
- Implement changes by March 2009

? Modify Floodplain management criteria
- Tier 1: Sept. 2010; Tier 2: March 2011; All: Sept. 2011

X Modify Community Rating System
- Make changes by June 09

X Modify Levee Veg. Maintenance and Construction
- Sept. 2010

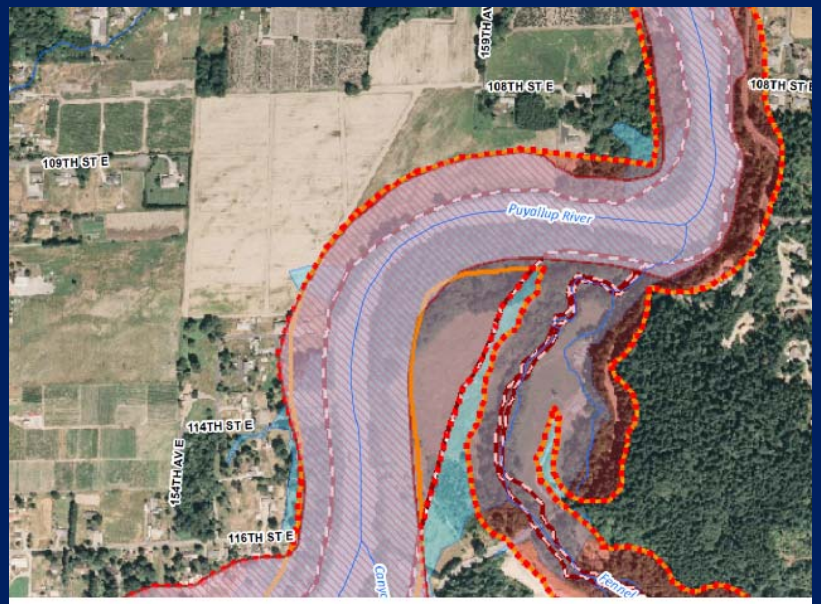
X Mitigate Unmitigated Adverse Affects
- Now till full implementation of elements 2, 3, 5.

X Monitoring and adaptive management
- Annual reports to NMFS on progress, timelines, on-the-ground NFIP effects

# Model Ordinance

- Adverse Affects in Protected Area
- Cumulative Affects
  - vs. Project by Project
- Habitat Assessment

- Does it avoid jeopardy?




**Floodplain Management and the Endangered Species Act**

**A Model Ordinance**

2010

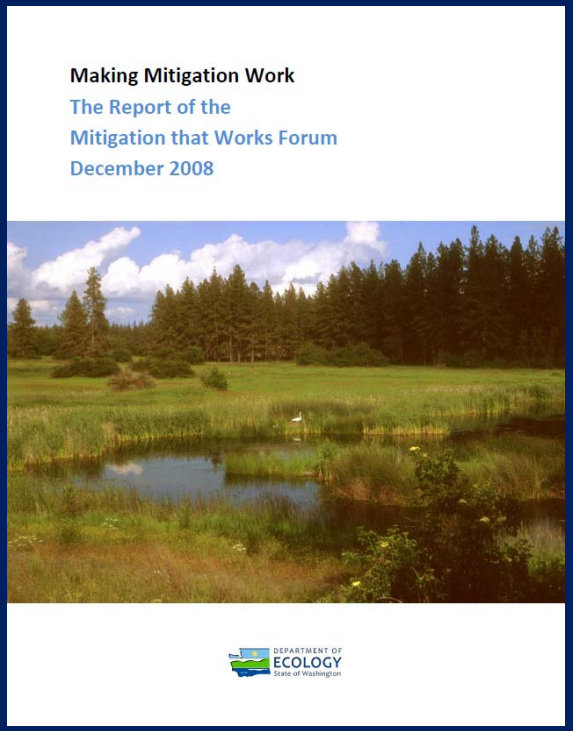
FEMA Region 10

# State Role

- SMA and GMA: “No Net Loss”
- ESA: “No Adverse Affects”

- “Most mitigation projects fail to fully achieve their intended goals…

- …and are not effectively replacing lost or damaged resources, habitats, and functions.” (Ecology 2008)
  - 20% of sites fail after 2 years



# Options for State Policy Change

Minimal or No Cost

- Allow Ecology rulemaking authority to go beyond NFIP minimum criteria
- Restrict state funding for projects in SFHA
- Limit emergency repairs of Levees
  - WSDOT Chronic Enviro Deficiencies program

# Options with Budget Impact

- Require State to track/publish info on flooding, flood costs
  - Track ecological functions; future conditions
- Map CMZ
- Establish Levee Setback program
- Support buyouts of repetitive loss structures
  - Restore floodplain functions
  - Prioritize areas with severe problems/high restoration potential

# Pierce County's Approach

- Deep and Fast Flowing Floodway
  - Area with greatest risk to life and property
  - 3 ft. dept; 3 ft. velocity; combination
- Compensatory Storage
  - Prevents harm to adjacent property
- Dryland access
  - Prevent dangerous rescue
  - Most deaths occur driving through flood water

# Recap

- BiOp implementation in PS will be model for nation
  - Essential to get it right
- Development patterns make flooding a costly problem in PS
  - Climate change will make it worse
- BiOp implementation is inadequate
  - NFIP is likely still jeopardizing salmon
- Opportunity for state-level policy changes to improve floodplain functions and public safety

# Join a Lunch Table Discussion to Explore these and other ideas

Thank you