# NMFS BiOp on FEMA's National Flood Insurance Program (NFIP)


U.S. Department of Commerce
Northwest Region
NOAA Fisheries
National Marine Fisheries Service

**DeeAnn Kirkpatrick**

**January 22, 2009**

# Background

Lawsuit - NWF v. FEMA

Consultation started with Washington State, later Puget Sound area

Species / Critical Habitat Covered

- Chinook, steelhead, summer chum, sockeye, killer whales
- Critical habitat for all except steelhead

# Analysis Approach For Salmon

- Flooding
- Critical salmon pops (Tier 1) (3-4 for each ESU)
- Human pop growth in NFIP communities

# Flooding, Salmon Populations, and NFIP communities

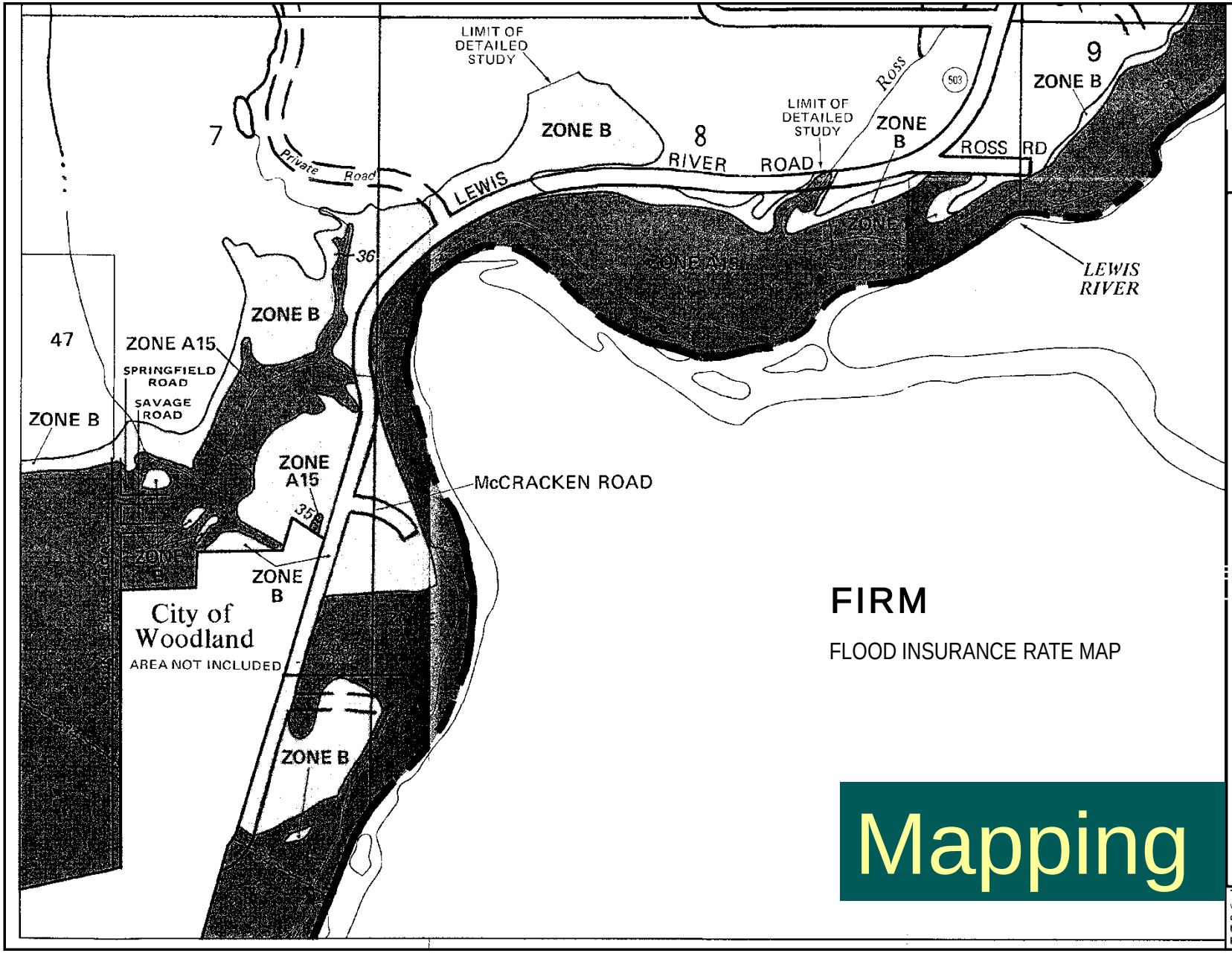
| ESU/ WRIA | Population/ Stock/ River | *Community/* Start Date/ Total Yrs/ **# of Policies** | Total census, FEMA, (% Pop Growth by WRIA 1990-2001, PSAT) | *% change in County since Start Date, OFM/* % change in County by 2025/ **% change in County from 2005-2030** | *Floodplain Watershed Rating (State)** : Floodplain as Limiting Factor (LF)(Recovery Plan)**: **Floodplain & Channel Structure as LF ***** |
|---|---|---|---|---|---|
| | Pu- White (Pu, White) | *Pierce Co* 1987, *20,* **982** | 332980 (28%) | *33% in 20 years;* 25% in 18 years; **72%** | *Good/Poor:* One of significant habitat limiting factors – loss of floodplain processes and off-channel habitat from levees especially the Puyallup, White and Carbon (p. 278, WP).:**++Most influential** |

# Jeopardy Analysis

+ Program Effects
+ Status of Species and Critical Habitat
+ Baseline Conditions
+ Cumulative Effects
= Jeopardy or No Jeopardy, and
= Adverse Modification or No AM

# Program Description

- Mapping
- Minimum Criteria
- Community Rating System
- Indirect Effects / Interrelated Actions:
  - Levees
  - Development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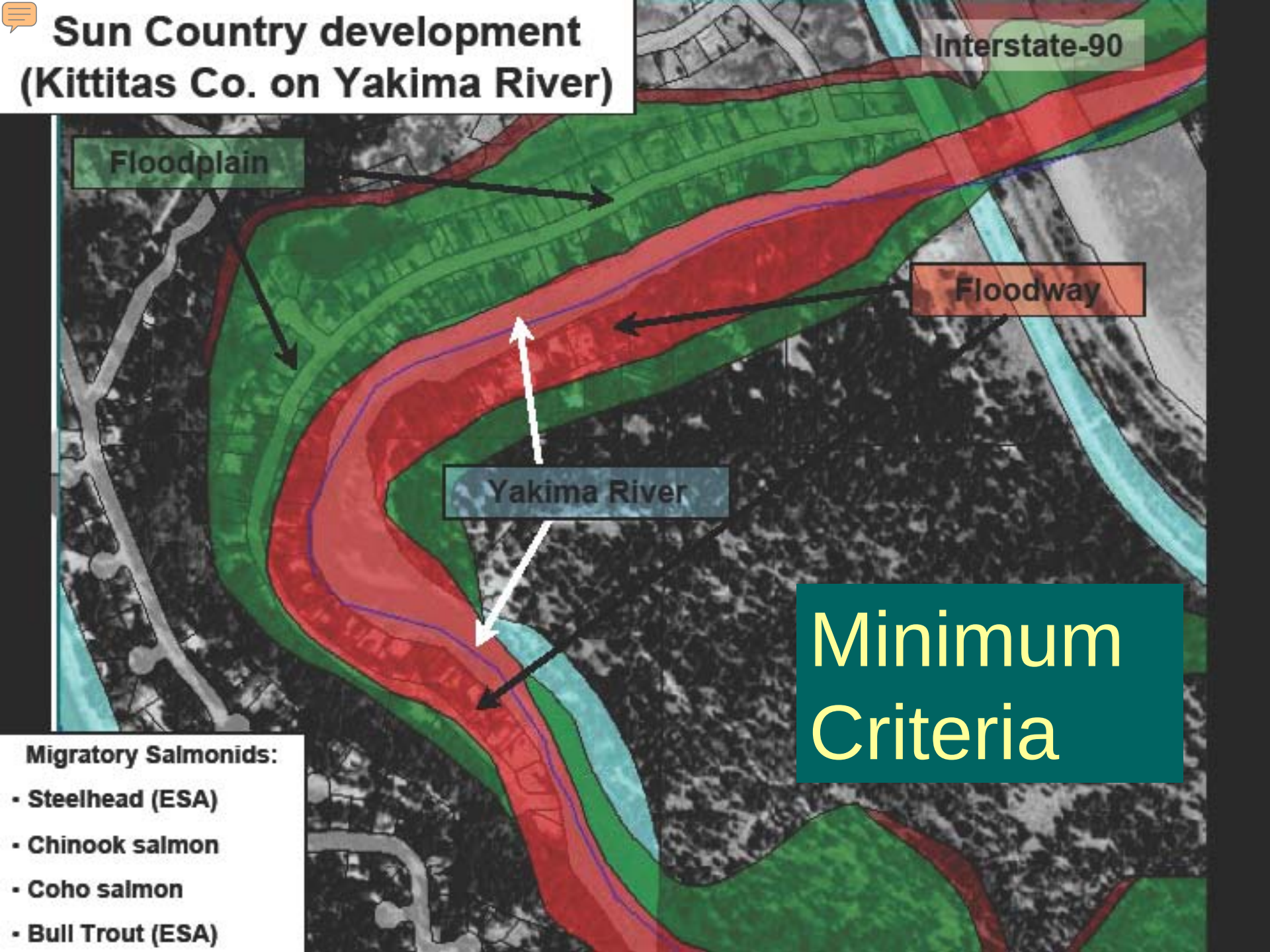
Sun Country development
(Kittitas Co. on Yakima River)
Interstate-90
Floodplain
Floodway
Yakima River
Minimum Criteria
Migratory Salmonids:
• Steelhead (ESA)
• Chinook salmon
• Coho salmon
• Bull Trout (ESA)

# Community Rating System

- Provides reduced insurance premiums to communities exceeding minimum criteria
- Gives points for flood protection/reduction activities
- Some activities benefit listed species/CH, some have detrimental effects


Levees
© 2007 Europa Technologies


Development

# NFIP Program Effects

- Effects to listed species/critical habitat not considered/analyzed
- Floodplain models/maps inaccurate, outdated
- Allows fill and levees (no insurance) and development
- Levees confine channels, mgt removes riparian vegetation, armors banks
- Stormwater increases stream flood flows, decreases water quality

# Effects to Critical Habitat

Decreased: flood storage and conveyance, filtering of runoff and processing organic wastes (decreased water quality), recharge to gw, riparian vegetation, soil fertility, habitat and biodiversity

Increased: flood velocities, elevations, flows, volumes,sedimentation and erosion, water temp

No protection of CMZ, riparian vegetation, river banks, off-channel and in-stream habitat, hyporheic zone, etc.

# Effects to Salmon

- Chinook, steelhead, and chum utilize floodplain and channel habitat for rearing, foraging, refuge, migration, and spawning
- Salmon using floodplains have higher growth and survival rates; salmon using channels expend more energy
- Channels confined by levees and floodplain and displace salmon, reducing productivity and survival

# Status and Baseline

Species status:

Salmon and steelhead – threatened, high risk

killer whale – endangered & depleted

Critical Habitat status and baseline:

Channelization, freshwater and estuarine floodplain habitat loss/access (salmon & steelhead)

Decreased prey (killer whales)

# Cumulative Effects

Land use change in floodplain:

- Reduced channel and floodplain function, reduced flood storage and channel capacity, increased stormwater runoff

Climate change:

- Increased frequency and severity of floods, increased water temperature, lower spawning flows

# Jeopardy Analysis for Salmon & Critical Habitat

Effects of the Action + Baseline & Status

+ Cumulative Effects

= ⇩ survival (individual scale)

= ⇩ productivity & abundance (pop)

= ⇩ spatial structure & diversity (ESU)

= Jeopardy to the species

= ⇩ conservation value of CH (3 scales)

= Adverse Modification of CH

# Jeopardy for SRKW & CH

Effects of the Action + Baseline & Status

+ Cumulative Effects + Jeopardy to salmon

⇩ prey base of SRKW

⇩ survival

= Jeopardy to SRKW

Jeopardy to salmon

⇩ prey

⇩ conservation value of CH

= Adverse modification of SRKW CH

# Reasonable and Prudent Alternative (RPA) Elements

1. Notification
2. Mapping
3. Minimum Floodplain Mgt Criteria
4. Community Rating System
5. Levees and Development
6. Mitigation
7. Monitoring and Adaptive Management

# RPA - Notification (by 10/22/08)

Relay consultation outcome, identify communities affecting Tier 1 and 2 fish populations

- Current NFIP = J and AM, take
- Temporary moratorium
- ESA coverage for adopting revised minimum criteria

# RPA - Mapping (by 3/22/09)

- FEMA issues LOMC when effects are avoided or mitigated
- Mapping prioritized based on salmon
- Floodplain modeling uses on the ground data, unsteady state, and 2-D models
- Map modeling considers future conditions and cumulative effects
- Communities identify flood risk behind levees based on future conditions, cumulative effects

# RPA - Minimum Criteria

Allow no development in the Riparian Buffer Zone (RBZ)*, OR

Demonstrate that no adverse effects to habitat will occur.

*RBZ = greater of the Channel Migration Zone + 50 feet, the RBZ including buffer depending on stream type, and FEMA floodway

In addition, prohibit development in the 100-year floodplain, OR

Mitigate for all habitat, flood storage and development effects

# RPA - Minimum Criteria

- All floodplain development must use LID practices for stormwater
- Greater than 10% expansion of existing buildings must mitigate for all habitat, flood storage, and development effects

# RPA - Minimum Criteria

Community Implementation schedule:

9/22/10: 35% of NFIP communities, 100% of Tier 1 communities

3/22/11: 75% NFIP communities, 100% of Tier 2 communities

9/22/11: 100% of all NFIP communities

# RPA - Minimum Criteria

Interim actions:

- Communities track/report floodplain permits issued.
- FEMA mitigates for all unmitigated activities

Long-term actions:

- All mitigation reported, if not effective, FEMA mitigates

# RPA - Community Rating System (6/22/10)

- Increase credits for open space preservation, moving pre-firm out of floodplain
- Award points for LID, retaining and increasing riparian function, levee setbacks and removal, active buyout program, activities beneficial to salmon,
- Reduce points for levees, closing conveyance channels, etc.
- Encourage communities to have levee certified by professional engineer rather than the COE

# RPA – Levees (9/22/09)

FEMA will:

- not recognize COE certified levees unless NLAA salmon habitat
- revise policy so that levee owners opting out of PL 84-99 still get emergency funding
- Not recognize levees unless maintain natural floodplain function (CMZ, LWD, riparian veg, flood flows)

# RPA – Development in the Floodplain (9/22/09)

To address increased runoff from development FEMA shall:

- Encourage floodplain acquisition, purchase of development rights, levee setbacks, flood easements, reduction in flood risk that benefits salmon
- Use FEMA funding for projects
- Report on project implementation

# RPA – Mitigation (on-going)

- For NFIP actions that occur before and after full implementation that degrade habitat (for elements 2, 3 and 5)

  - For failed mitigation

# RPA – Monitoring and Adaptive Management (on-going)

- Report progress on meeting timelines, implementing RPA elements
- As a result of review, alternate actions may be identified


Questions?