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

<table>
<thead>
<tr>
<th>ESU/ WRIA</th>
<th>Population/Stock/River</th>
<th>Community/Start Date/Total Yrs/# of Policies</th>
<th>Total census, FEMA, (% Pop Growth by WRIA 1990-2001, PSAT)</th>
<th>% change in County since Start Date, OFM/ % change in County by 2025/ % change in County from 2005-2030</th>
<th>Floodplain Watershed Rating (State)*: Floodplain as Limiting Factor (LF)(Recovery Plan)**: Floodplain &amp; Channel Structure as LF ***</th>
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<tbody>
<tr>
<td>Pu- White (Pu, White)</td>
<td>Pierce Co 1987, 20, 982</td>
<td>332980 (28%)</td>
<td>33% in 20 years; 25% in 18 years; 72%</td>
<td>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</td>
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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
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
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• Floodplain models/maps inaccurate, outdated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
• 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
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
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)
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?